DOCUMENT RESUME

ED 214 120 CS 006 536

AUTHOR Otto, Wayne; And Others
TITLE A Technique for Improving the Understanding of Expository Text: Gloss (Part 1); Examples of Gloss Notation (Part 2).
INSTITUTION Wisconsin Center for Education Research, Madison.
SPONS AGENCY National Inst. of Education (ED), Washington, D.C.
REPORT NO WCER-TP-96
PUB DATE Nov 81
GRANT NIE-G-81-0009
NOTE 164p.; Report from the Program on Studies in Language: Reading and Communication. Part 2 may be marginally legible.

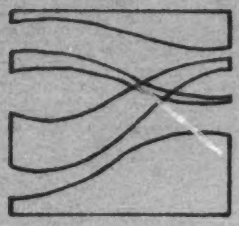
EDRS PRICE MF01/PC07 Plus Postage.
DESCRIPTORS *Cognitive Processes; Elementary Secondary Education; Prior Learning; *Reading Comprehension; Reading Improvement; *Reading Instruction; *Reading Processes; Reading Research; Reading Skills
IDENTIFIERS *Glossing; *Reading Strategies

ABSTRACT

The procedures described in this report are designed to help students both develop and apply effective behaviors for understanding expository text by means of gloss--a technique that involves the use of marginal notes and other intratext notations to direct readers' attention to places in the text where the application of specific skills and strategies would aid comprehension. The first part of the report discusses skills and strategies in reading comprehension, including prior knowledge, organization, and comprehension monitoring, and provides guidelines for glossing and an introduction to the subsequent examples. The second part of the report provides several examples of gloss notation. (HTH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.



ED214120

Theoretical Paper No. 96

Part 1. A Technique for Improving the Understanding of Expository Text: Gloss

Part 2. Examples of Gloss Notation

by Wayne Otto, Sandra R. White, Donald Richgels, Ruth Hansen, and Beverly S. Morrison

November 1981

Wisconsin Center for Education Research

CS006536

Theoretical Paper No. 96

A TECHNIQUE FOR IMPROVING THE UNDERSTANDING OF EXPOSITORY TEXT: GLOSS

by

Wayne Otto, Sandra R. White, Donald Richgels,
Ruth Hansen and Beverly S. Morrison

Report from the Program on
Studies in Language: Reading and Communication

Wayne Otto
Faculty Associate

Wisconsin Center for Education Research
The University of Wisconsin
Madison, Wisconsin

November 1981

The research reported in this paper was funded by the Wisconsin Center for Education Research which is supported in part by a grant from the National Institute of Education (Grant No. NIE-G-81-C009). The opinions expressed in this paper do not necessarily reflect the position, policy, or endorsement of the National Institute of Education.

Wisconsin Center for Education Research

MISSION STATEMENT

The mission of the Wisconsin Research and Development Center is to understand, and to help educators deal with, diversity among students. The Center pursues its mission by conducting and synthesizing research, developing strategies and materials, and disseminating knowledge bearing upon the education of individuals and diverse groups of students in elementary and secondary schools. Specifically, the Center investigates

- diversity as a basic fact of human nature, through studies of learning and development
- diversity as a central challenge for educational techniques, through studies of classroom processes
- diversity as a key issue in relations between individuals and institutions, through studies of school processes
- diversity as a fundamental question in American social thought, through studies of social policy related to education

The Wisconsin Research and Development Center is a noninstructional department of the University of Wisconsin-Madison School of Education. The Center is supported primarily with funds from the National Institute of Education.

Table of Contents

	Page
Abstract	vii
PART I	
Introduction	1
Skills and Strategies	6
Skills	6
Strategies	10
Prior Knowledge	13
Organization	16
Comprehension Monitoring	19
Summary	22
Guidelines for Glossing and Introduction to the Examples	23
References	29
Epilog	33
PART II	
Examples of Gloss Notation	37

Abstract

Gloss is a technique that involves the use of marginal notes and other intratext notations to direct reader's attention while they read. Instead of relying on traditional adjunct aids like questions and advance organizers, gloss attempts to direct the reader's active attention to places in the text where the application of specific skills and strategies would aid comprehension. Gloss notations focus on both the process (skills and strategies) of reading content area texts and/or the content (facts, concepts) of texts. Guidelines for writing gloss are given along with examples of gloss notations for a variety of texts.

Introduction

The procedures described in this paper are designed to help students both to develop and to apply effective behaviors for understanding expository text. Our developmental efforts have been motivated by our confidence that comprehension skills can be taught and our concern that students need help making the transition from learning skills to applying them when they read content-area materials. We identified specific comprehension skills as we developed the comprehension element of the Wisconsin Design for Reading Skill Development and we are satisfied that, after a period of skill-centered instruction students can pass criterion-referenced tests as a demonstration of their "mastery" of specific skills. Yet we have observed that teachers who use such a skill-centered approach in their teaching seldom offer explicit instruction or directed practice on how to apply the skills in reading tasks outside of formal instruction. At the same time, we have learned from our interviews with teachers that they worry about their students' ability to apply specific comprehension skills when they read content-area texts (Kamm and White, 1979). We have also learned, from a survey of postelementary teachers in several content areas, that a majority of them expect their students to need help with at least nine specific comprehension skills in order to learn the subject matter in their classes (Morrison, 1980).

The technique that we are developing employs marginal notes and other extratext notations to direct readers' attention to places in text where the application of specific behaviors would be appropriate. We are using the terms "gloss" and "glossing" to designate and describe the procedure--terms which have been around at least since medieval times, when theolo-

gians used gloss to elucidate scriptures. Figure 1 depicts gloss as the product of a dual-focused process that operates within certain constraints and considerations and provides possible instructional excursions. The figure is explained in detail elsewhere (Otto, White, Camperell, 1980). Very briefly we are suggesting that (a) the behaviors to be directed by gloss notations may include strategies as well as skills; (b) the gloss may focus on the content of the text as well as comprehension processes; (c) students may need preparatory or additional instruction (excursions) in comprehension skills and strategies or in content-area subject matter; and (d) the form gloss takes depends upon such considerations as expected results, elements of the instructional milieu and characteristics of both the reader and the text.

At first, our goal was to use gloss notations to develop and then to encourage the application of the specific comprehension skills we had identified in our earlier work (e.g., determining the central thought of a section of text, or using context clues to figure out the meaning of an unfamiliar word). Then, as we examined related research and interviewed students, we became convinced that the comprehension process involved--besides skills--more general strategies that efficient readers use to understand text. Accordingly, gloss notations that focus on the process of reading content-area texts includes activities designed to develop or encourage application of general strategies--an example of which is the practice of self-questioning--as well as specific skills.

We also acknowledge that gloss notations ought not focus only on process matters in reading content-area texts. Attention must also be

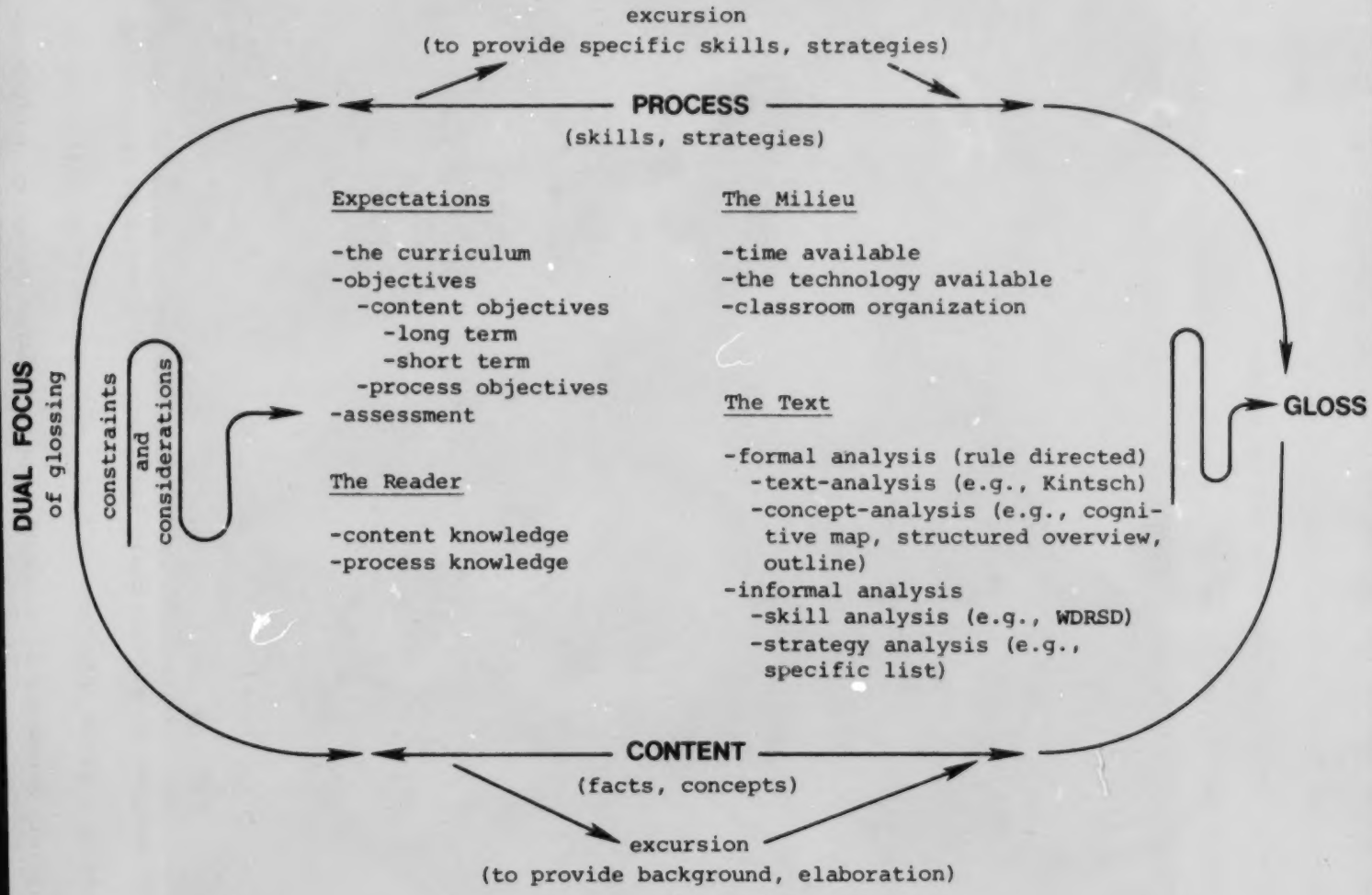


Figure 1. Foci, constraints and considerations for glossing.

given to the content per se. While no reading specialist can claim to be an expert in every content field, principles of text analysis can be applied to materials that were written by experts. If, in preparing gloss, the important content of expository texts is first identified--by using such techniques as mapping, outlining, and the more formal text analyses of Kintsch (1974, 1979, in press), Meyer (1975), and others--the gloss notations presumably can promote the improved understanding of specific glossed materials even as they develop and encourage application of skills and strategies. This paper deals mainly with the process focus of gloss; some suggestions for content-focused gloss are given in the epilog.

Figure 1 alludes to possible "excursions" from the main thrust of the gloss notations as such to instruction that is related to but not directed explicitly to the process or content demands of a given text. Excursions are offered in addition to the gloss notations provided for given texts. While gloss notations are intended (a) with a process focus, to promote the development and use of skills and strategies, or (b) with a content focus, to promote understanding of important content, we expect that for certain readers and/or texts, intensive preparation will be necessary before text-specific gloss can have an optimal effect. An example of a process-related excursion is instruction offered to a reading skill-development group, where a given skill or strategy is taught intensively and in relative isolation, particularly when that skill or strategy is new to the student. An example of a content-related excursion is instruction that is designed to provide basic background information in preparation for reading a given selection of text. Such a content excursion may be particularly necessary if students require a large amount of basic back-

ground information, which, if handled through gloss notations, would make them cumbersome and sluggish.

The constraints and considerations identified in Figure 1--Expectations, The Milieu, The Reader, and The Text--are aspects of a complex teaching-learning process, which deserve consideration when gloss activities are prepared. For example, the writer of gloss ought to consider (a) the goals of the overall curriculum and the stated and unstated objectives of content-area instruction (Expectations); (b) the time available for instruction and whether individuals or groups will be using the gloss (The Milieu); (c) the reader's prior knowledge of text-related content and his/her knowledge of and ability to apply specific process-related skills and strategies (The Reader); and (d) important concepts communicated by a given text, as identified by some type of text analysis (The Text).

The ultimate goal is to help students not only to acquire but also to internalize and apply the skills and strategies that enable them to be independent readers of the full range of materials they encounter. In its most basic form, gloss is an attempt to share a mature (expert) reader's insights into the reading process with developing (novice) readers. Yet if gloss is to contribute to the goal of independence, it must ultimately provide in a systematic way for students' internalization of those insights by the gradual removal--or fading--of external direction. Accordingly, we envision four stages of gloss: (1) <u>demonstration gloss</u>, which is intended to create readers' awareness of approaches to text that help them comprehend and to develop their enthusiasm for working with glossed materials; (2) <u>development gloss</u>, which will give readers explanations of how to use skills and strategies and opportunities to apply them in reading content-

area texts; (3) internalization gloss, which will help readers move toward a level of metacognition, including their awareness of when to apply the skills and strategies they have learned and which of them is most appropriate in a given situation; and 4) fading gloss, which will simply remind readers to think about their own efforts to understand what they are reading, to think about the skills and strategies that help them to comprehend, and to correct miscues and misconceptions.

Up to the present, we have worked only with the first two stages of gloss, so the discussion that follows is limited to demonstration and development gloss. In the sections that follow, we (a) discuss our rationale for choosing particular skills and strategies for development through glossing and (b) give guidelines for designing gloss notations. In Part II, we give examples of process-focused gloss for a wide variety of content-area text selections, along with explanatory notes about the examples.

Skills and Strategies

Skills

Reading with understanding involves an interaction between reader and text. In order for the interaction to be productive, the reader must bring certain capabilities to the reading task. Having done considerable work in developing an objective-based system for teaching reading skills (i.e., the Wisconsin Design for Reading Skill Development, Otto and Askov, 1974), we continue to believe that specific skill development is an important part of the learning-to-read process. We know from our observations in classrooms (Kamm and White, 1979) that some type of skill-development instruction is part of virtually all developmental reading programs. In learning-

to-read situations, then, students usually receive some type of skill instruction, and in many instances they are required to demonstrate competency with reading-learning skills on criterion-referenced tests and/or norm-referenced tests. In learning-from-text situations, however, merely "having" a skill in one's repertoire is not sufficient; the successful reader must be able to make appropriate application of the skills in a variety of contexts. We have found that skills usually are not applied spontaneously. "Application" must be demonstrated and nurtured in content-area classrooms as students use reading skills to learn from text.

Robinson (1978) defines skills, with a content-area classroom perspective, as "individual components that appear to be essential tools for contending with the writer's message..." (p. 24). A command of reading-learning skills and the ability to apply these skills appear to be essential to a successful interaction between reader and text. Furthermore, in content-area classrooms the nature of a specific reading task determines which skills need to be applied. A cluster of skills might be required for one task while one particular skill might be sufficient for another. Instruction in the content areas, then, ought to make provision for the application of appropriate skills in content-reading tasks. Reading skills should be practiced and applied, in whatever combination is appropriate for a given task, with the expectation that they will help the reader deal with the main task of getting meaning from the text.

In developing specifications for glossing content-area texts, then, one basic step has been to identify a list of skills that we feel are important to reading content-area texts. This decision to select specific skills

for development/application is supported by data from a survey of content-area teachers (Morrison, 1980) and by the findings from interviews with students (White and Camperell, 1980). The survey data show that teachers (a) attach considerable importance to specific reading-study skills in the effective reading of content-area texts, and (b) believe that students, even at post-elementary levels, need specific instruction to develop and apply such skills. Interviews with students (White and Camperell, 1980) show that many students do in fact have some knowledge of different types of skills and that they do use them in processing text. The suggestion is that within the context of schooling the teacher is an important aspect of any reader-text interaction [see Barr (in press) for a more complete discussion of a "teacher-reader-text" interaction].

Considering together our experiences with the Wisconsin Design and the findings from the Morrison survey and the White-Camperell interviews, we selected a list of skills that seem to be both teachable and useful for learning from text. The skills can be clustered as follows:

1. Skills for getting the meaning from words
    a. word parts
    b. context clues
2. Skills for getting the meaning from sentences
    a. paraphrase (synthesis)
    b. details (analysis)
3. Skills for getting the meaning from selections
    a. central thought
    b. relationships/conclusions
4. Skills for identifying sequence

We have written on instructional objective for each skill. These objective statements provide direction and guidance for planning instruction to assist the reader in learning from text and for developing gloss notations.

The skill clusters with prescriptive objectives are as follows:

Skills for getting the meaning from words. [The instructional objectives are adapted from Otto and Smith (1980).]

Word parts.

The learner recognizes that an affix can modify the meaning of a base word and/or help identify the grammatical function of the base word.

The learner determines the meaning of a compound word by applying knowledge of component words.

Context clues.

The learner uses explicit context clues (e.g., synonym definitions, equivalent phrases, summary) to determine the meaning of an unfamiliar word in context.

The learner determines the meaning of an unfamiliar word in a context that contains implicit clues (e.g., cause/effect, contrast, example, modifying phrase).

The learner uses explicit and implicit context clues to determine the obscure meaning of a familiar word in context.

Skills for getting the meaning from sentences.

Paraphrase.

The learner restates sentences by rearranging the order of words in the sentence and/or by substituting for one or more words.

The learner restates sentences that contain subordinate clauses by rearranging and/or substituting for more than a short phrase.

Detail

The learner attends to details of syntactic and semantic relations within the sentence.

Skills for getting the meaning from selections.

Central Thought.

The learner generates the central thought of a selection that includes a topic sentence and has both relevant and irrelevant information.

The learner generates the central thought of a selection that includes both relevant and irrelevant information and may/may not include a stated organizer.

Relationships/Conclusions.

The learner identifies relationships that are either directly or indirectly stated in a passage.

The learner indicates whether or not a conclusion can be made on the basis of the stated relationships in the passage.

The learner draws conclusions based on either direct or indirect relationships given.

Skills for identifying sequence.

The learner determines where a specific event occurs within the framework of a series of explicit/implicit events by attending to the explicit/implicit sequential cues in a selection.

Strategies

Specific skills, we believe, are a legitimate focus of instruction to enhance students' understanding of content-area materials. But we acknowledge the need for a broader focus. Consideration of emerging research and theory (Otto and White, in press) and our experiences with students (Camperell, 1980; White & Camperell, 1980) and teachers (Morrison, 1980) provides us with a basis for giving attention to more general strategies as well as specific skills.

Of the general strategies we have identified, we have selected four that are frequently described by successful readers and that appear to have high utility in reading most content-area texts. These strategies are:

establishing a purpose for reading, relating what is being read to prior knowledge, attending to text organization and/or imposing organization on both new information and prior knowledge, and monitoring one's own comprehension. A brief rationale for choosing each of these strategies follows. We should, however, first acknowledge that our view of strategy development and application derives mainly from our own interviews with students (Camperell, 1980; White & Camperell, 1980) and from work in the area of metacognition. Baker and Brown (in press) give good reasons for giving attention to metacognition:

> Interestingly, few investigators in the traditional study skills literature have been primarily concerned with what the student does during reading to facilitate learning from text. For example, Robinson's (1941) SQ3R technique instructs the student to engage in survey and question activities before reading, and to engage in recitation, reflection, and review activities after reading. However, what a student does while actually processing the material may be one of the most important aspects of effective study, and it is this aspect that the "metacognitive" research focuses upon (in press).

We give explicit attention to the role of metacognition in our discussion of comprehension monitoring, which is based directly on this research. In that discussion, we also attempt to depict the interdependence that exists between the four strategies.

Establishing Purpose. About three-fourths of the respondents to Morrison's (1980) survey of post-elementary teachers thought that the following "skills"--which together amount to a purpose-setting strategy--

were important to reading their subject matter:

1. The student sets a purpose for reading.
2. The student formulates questions relevant to his/her purpose for reading.
3. The student adjusts reading speed to his/her purpose for reading. (See pp. 47-49.)

In addition, about half of the respondents thought that they would need to help students learn how to apply these "skills." Interviews with students indicate that students, as well as teachers, recognize a need to read for a specific purpose (White & Camperell, 1980).

From a more theoretical-empirical stance, Rothkopf (in press) claims that establishing purposes for reading (or "learning goals," as he calls them) controls the mathemagenic process of selection (i.e., differentiation of processing of a text which results in differences in what is learned from that text). Appropriate control of the selective mechanisms is, according to Rothkopf, necessary for learning.

Establishing a purpose may either be initiated by the teacher or be self-imposed by the student. According to Robinson (1978), the only strategy that is as effective in improving study-reading as having the teacher establish purposes for reading is having students identify their own purposes. Robinson goes on to suggest that once a purpose is set, a reader can initiate other strategies for comprehending that are consistent with the purpose. This is in line with the aspects of the productive purpose-setting strategy identified by Morrison: (a) once a purpose has been set by the students or the teacher, (b) the students are in a position to develop questions relevant to their purpose, and (c) then the students

can determine and adjust their reading speed in view of the purpose.

Establishing a purpose is an important strategy that must be developed systematically. A well-defined purpose goes beyond simply "gaining understanding" to identifying specific goals and reasons for reading. One way to help students develop their purpose-setting strategy is to provide gloss activities which deal specifically with the three related aspects identified in the Morrison study. First, gloss would be used to set purposes for the students (Demonstration Gloss) and later gloss would provide suggestions as to how students can begin to establish their own purposes for reading (Development Gloss). Then, as students begin to learn how to identify a purpose, gloss notations can help them develop the skill of asking questions that they would hope to answer after reading the text for a specific purpose. (At the demonstration stage, gloss activities can provide model questions for the students; later, in the development stage the gloss can lead students to generate their own questions.) Finally, gloss activities can help students learn how to adjust their reading rate in line with the purpose for reading. Again, demonstration gloss could be used to suggest an effective rate, and development gloss could lead them toward setting their own rate in line with the purpose they identify.

Prior Knowledge. Recent studies related to schema theory provide a rationale for developing a strategy for relating prior knowledge to what is being read. Taken together, the studies make a basic point: what is known affects one's understanding of new material. Naus (in press) says it this way: "Although there is debate as to how knowledge is represented in permanent memory, there is strong agreement on the general principle

that what is already known is of major importance for what can be known." Prominent concepts related to schema theory, such as depth of processing and reconstructive comprehension, suggest that processing at the deepest levels involves tying what is being read or presented to pre-existing knowledge (Schallert, in press). Kintsch, too, emphasizes the importance of prior knowledge in his definition of meaning:

> The meaning of a text is thus defined only for a particular comprehension episode, and depends as much on the reader's background and goals as on the characteristics of the text itself (in press).

Results of interview studies conducted by Camperell (1980) and White and Camperell (1980) suggest that students seek to use their prior knowledge to gain understanding in at least three ways: (1) by relating the new information in a passage to ideas they have read in preceding passages, (2) by contrasting the information they are reading to their prior knowledge and experience, and (c) by comparing the information they are reading to their prior knowledge and experience (Camperell, 1980, p. 107).

Smirnov (1973) also suggests that "using" prior knowledge is an important strategy: He talks directly about relating the content of the text to existing knowledge: "...the greater the knowledge with which the new is correlated, the more it is connected with it, and the more recognized are their connections, the deeper is comprehension" (p. 143). The subjects of his interviews said they engage in the following actions when they try to understand text:

1. composing a plan
2. correlating the text with existing knowledge
3. correlating the content of various parts of the text

4. utilizing images
5. translating the content of the text into "one's own language" (p. 148).

Finally, Smirnov says that correlating the various parts of a text must occur all of the time or there can be no comprehension of the text as a whole. One of Smirnov's subjects put it well: "While reading I often stopped in order to emphasize in my mind what had been read, comparing it with what had been said earlier about bacteria" (p. 143).

Based on our own interviews and Smirnov's work, then, we feel it is important to consider two processes--correlating text content with existing knowledge and correlating content of various parts of the text--in preparing gloss to help students develop the strategy of using prior knowledge. In other words, gloss notations that are intended to develop the strategy of actually using prior knowledge, should help students learn how to relate what they are reading to (a) what they already know or to familiar experiences and (b) information they have just read in a previous paragraph or passage of the same text. At the demonstration stage, gloss activities can involve explanations as to <u>what</u> information (i.e., information within the text and within students' experiences) is related in <u>what</u> way. Later, in the stages of <u>development</u> and <u>internalization</u>, gloss activities can provide opportunities for students to learn <u>how</u> to correlate the information they are reading within the text.

Hayes and Tierney (1980) for example, describe the use of analogy (i.e., comparing new information to something familiar) in an instructional procedure for developing the strategy of relating new information to prior knowledge. They found that alternative modes of analogy improved eleventh

and twelfth grade students' learning from text. Thus, it appears that the use of analogy can be developed as one technique for students to use in improving their comprehension of text by relating the new and the old. Additional techniques for correlating information within the text are discussed in the next section on organizational strategies.

Organization. At least 75% of the respondents to Morrison's survey indicated that students need to develop the "skill" of attending to the organization of material in order to learn content-area subject matter. In addition to attending, however, students must actively organize new information as they read; that is, they must organize what they are reading in relation to what they already know. Students must develop strategies for (1) making use of the organization provided in texts, and (2) imposing organization on information that has been and is being acquired. The discussion that follows addresses each of the two strategies for organizing information.

Regarding the in-text strategy, Herber (1978) identifies two types of expository text organizations: internal and external. He suggests, first, that students need to be aware of internal organizational patterns of textbooks, such as cause/effect, comparison/contrast, time order, and simple listing patterns (p. 78). Second, Herber says students should become familiar with the external organization of a text. This type of organization involves format (e.g., formulas and problems characteristic of math texts or the typographical style characteristic of poetry or

or drama texts) and physical features (e.g., graphic aids, tables of contents, and chapter headings). Herber says that students should be taught how to use both internal patterns and external features as aids to dealing with the organization of text to gain understanding. Kintsch (in press) identified six types of expository text organizations: identification, definition, classification, illustration, comparison and contrast, and analysis (structural analysis, functional analysis, causal analysis). He, too, stresses the importance of helping students develop strategies for attending to text organization:

> All comprehension is strategy based, and knowledge about text types provides the reader with some powerful comprehension strategies. These strategies are particularly important, because they have to do with the over-all organization of the text. As with other strategies, it is possible to do without them, but being able to use text-specific organizational strategies can be a great help to the comprehender....if you have the background in the content area, knowing how arguments are structured and what to expect when, can be of considerable help (in press).

Regarding a learner-imposed organization strategy, Schallert (in press) speaks of "the human propensity to impose organization upon input." To successfully apply the strategy of relating information to prior knowledge, students must learn how to organize the knowledge they gain in their day-to-day reading. In addition, if a text does not provide a consistent easy-to-follow organization, students may have to impose organiza-

tion on the information in order to comprehend. Smirnov (1973) found in his interviews that one process used by his subjects is the composition of a plan which involves breaking up the material into parts, grouping thoughts, and isolating meaningful points. Smirnov's subjects seemed to be imposing some type of organization when they studied a text in order to improve their comprehension of the information.

To develop an overall strategy of attending to organization, gloss notations could help students recognize and make use of (a) different text formats and external features of text, such as headings and subheadings, that are used in organizing information, and (b) types of text organizations or "text types." After reviewing Herber's organizational patterns and Kintsch's text types, and after studying a variety of expository texts, we identified six types of organizational schemes that we believe may be important in helping students comprehend content-area material: cause-effect, comparison/contrast, sequential order, simple listing, definition, and classification. Gloss notations that are intended to help students develop the strategy of attending to organizational cues and imposing organization on information could make use of such schemes. At the demonstration stage gloss notations could both (a) point out the organizational schemes when they are used in a text, and (b) show students how such schemes can be used as organizational frameworks for relating information they are reading to information they have acquired from previous experiences. At the developmental stage gloss activities could (a) provide opportunities for students to identify the organizational schemes in text, and (b) provide instruction in how to organize one's expanding knowledge by using these schemes.

Comprehension Monitoring. All of the strategies we have discussed so far--establishing a purpose, relating prior knowledge, and both attending to and imposing organization--are synthesized when the strategy of comprehension monitoring is applied. Comprehension monitoring is a "metacognitive" activity which, according to Baker and Brown (in press), "entails keeping track of the success with which one's comprehension is proceeding, ensuring that the process continues smoothly, and taking remedial action if necessary." The process can be quite complex! Yussen, Mathews, and Hiebert (in press) put it more simply when they point out that comprehension monitoring may entail having certain "metacognitive experiences" such as noting that something is unclear, or recognizing that one does not understand an argument. Active comprehension monitoring must, however, involve "acting upon" such metacognitive experiences in order to improve comprehension. "Acting upon," according to Yussen, et al (in press) and Winograd and Johnston (1980), amounts to selecting reading strategies that will be most effective in fulfilling the needs of the particular reading situation. "A good comprehension monitor will select whatever strategy is most appropriate to the situation at hand" (Baker and Brown, in press). To monitor comprehension successfully, then, students must not only recognize when they are having problems with understanding, but also (a) be familiar with a variety of strategies, such as the ones discussed above, that can be applied to overcome comprehension problems; (b) be able to select strategies that are appropriate to a particular situation; and (c) know how to apply the strategies to overcome the specific problem.

It follows from these requirements that the comprehension monitoring

strategy stands in a special relation to each of the three other strategies we have described. The monitoring strategy is related to setting a purpose in that--as Winograd and Johnston (1980) have pointed out--assessment or control of the subject's purpose for reading is a prerequisite to making generalizations about a reader's ability to detect errors. The relationship between comprehension monitoring and relating what is being read to prior knowledge is clarified by Brown's and DeLoache's (1978) metaphor of the novice and the expert. By definition, the expert knows more and has had more experiences than the novice. Novices are likely to fail to select appropriate strategies and to check and monitor ongoing activities because of their inexperience with a particular task. This failure, however, does not mean that they are incapable of self-regulation; rather, they should be given assistance in learning how to monitor their understanding. Markman (1981) expands on this metaphor of the expert and novice in a way that clarifies the relationship between comprehension monitoring and attending to text organization. She shows that as one gains more expertise, knowledge not only becomes more specific and detailed but also more systematized. The reader who has systematized knowledge is then more likely to recognize organization in well written texts or impose it on poorly written texts.

Gloss notations written to develop the ability to monitor comprehension would focus on the interdependence among comprehension monitoring per se and the other strategies we have identified. As with the development of the other strategies, comprehension monitoring would also be developed in stages.

In order to have criteria for judging their success in comprehending,

students must set a purpose for reading. On the basis of (a) the established purpose and (b) their ability to answer the questions they have formulated in line with the purpose (see the discussion of establishing a purpose for reading), students should be in a position to evaluate the adequacy of their comprehension. Gloss notations would, first, help students develop the ability to establish purposes and goals as outlined earlier. Next, gloss notations would help students (1) become aware of the need to evaluate their comprehension in terms of the purpose they set, and (2) learn techniques for evaluating their comprehension in line with the purpose. One approach suggested by Baker and Brown (in press) is to ask questions that are relevant to the established purpose. Baker and Brown are convinced, on the basis of work by Singer (1978) and by Collins, Brown and Larkin (1981), that training effective question-asking may be a first step in the development of monitoring. At the demonstration stage, then, gloss notations could (1) identify a specific purpose for reading the selection, (2) provide answers to the kinds of questions that might be raised in relation to a given purpose, and (3) identify the specific skills that were brought to bear both in formulating and in answering the questions. At the developmental stage, gloss notations would direct students to (1) identify and state their purpose for reading a given passage, (2) generate and answer questions related to their purpose, and (3) determine their success in comprehending on the basis of their ability to answer the questions. Finally, if students have problems in understanding, they could be asked to select and then supply appropriate skills or strategies in order to overcome comprehension failure.

Prior experience in performing a particular task and prior knowledge

about specific content are also important to successful comprehension monitoring. The purpose of related gloss notations would be to bring about an awareness of the importance of prior experience in evaluating comprehension. At the demonstration stage, gloss notations could illustrate the use of prior knowledge of content and of specific strategies in different situations. At the development and internalization stages, gloss notations would offer opportunities for students to gain experience in questioning their understanding and in applying the skills and strategies we have identified in order to become "experts." Through practice and experience, students should gain a better understanding of themselves as comprehenders--an important aspect of metacognitive knowledge (Flavell, 1981).

Organization of knowledge, according to Markman, improves comprehension monitoring. Relevant gloss notations could be designed to develop the strategies of attending to the organization of text and of imposing organization on the information presented in text. As Markman (1981) suggests, students should be given "ample opportunity" to work with clearly organized material. Gloss activities at the demonstration stage would focus on well-organized passages and would indicate the organizational schemes inherent in the text or suggest strategies (as identified in the discussion of organization) that might be used to organize the information presented. At the developmental stage, gloss notations could, first, provide practice in recognizing various organizational schemes and in applying specific organizational strategies in clearly-organized texts; and then, notations could direct a similar kind of practice with texts that are not so well-organized.

Summary. The effective application of each of the strategies we discuss here depends on the application of the other three. Furthermore, the

effective application of these strategies also depends on students' ability to apply the specific skills that are identified in this paper. Baker and Brown (in press) make a similar point when they talk about two types of problems that interfere with reading effectively: "inefficient application of rules (skills) and strategies and impoverished background knowledge." The purpose of gloss notations, as discussed throughout this paper, is to help students overcome the first problem by bringing to their attention (demonstration gloss) and developing their ability to apply (developmental gloss) specific skills and strategies needed to comprehend expository text. We have selected skills and strategies that we believe are important to understanding text and which seem to be the ones applied by the mature reader. Baker and Brown's use of the metaphor of the expert and the novice summarizes what we are attempting to do in glossing text: "The more we are able to specify the rules used by expert readers, the more we will be able to successfully instruct the novice." In the next section, we describe guidelines for preparing gloss and provide examples of gloss written to develop the specific skills and strategies we have identified and selected.

Guidelines for Glossing and Introduction to the Examples

Preparing gloss is a process of making selections. If gloss is to enhance readers' understanding of a given text, then choices must be made as the gloss notations are prepared. The choices include such matters as deciding what aspects of the text's subject matter are most important, what components of the complex process of comprehending the subject matter require emphasis, and what purposes are to be served by this particular

reading. We have tentatively identified five guidelines for making the basic choices. The guidelines are consistent with the constraints and considerations (expectations, the reader, the text, and the milieu) depicted in Figure 1, and they pertain to preparation of gloss at any stage (demonstration, developmental, internalization, or fading), for any text. (NOTE: For convenience we refer to "the person who prepares gloss" as "the glosser.")

1. Decide what specific skills and strategies are important. This broad guideline calls for the most critical choice to be made in preparing gloss. (Of course a crucial prior decision--to be made by the teacher or, if someone else prepares the gloss, the glosser or, preferably, the glosser in collaboration with the teacher--has to do with the expected outcomes related to the particular reading assignment. Without such a decision, there can be no next steps. All of these guidelines, then, pertain to the preparation of gloss notations once a decision regarding expected outcomes has been made.) We presented a tentative list of skills and strategies earlier in this paper. We think they are important, and they are the ones we deal with in the examples of gloss notations that are given in the section that follows. The point here is that anyone who expects to write process-related gloss notations must have a specific list of skills and/or strategies in mind, whether it be ours or somebody else's.

2. Consider the reader's status with regard to the skills and strategies identified in Guideline 1. The glosser must be guided by the reader's process-related knowledge. In a given text-reader interaction, the reader presumably will have been introduced to the critical skills or strategies, either through classroom instruction or a process-related excursion. His/her degree of mastery of those skills or strategies will

determine the focus and nature of the gloss-directed instruction, e.g., the level of explanation and amount of practice to be provided through gloss notations.

3. Consider the prior knowledge of content required. The glosser must be guided by the reader's content-related knowledge. The reader's previous exposure to and mastery of information relevant to the subject area of the text-in-hand must guide choices about the focus and nature of gloss in the same way that facts about his/her process knowledge do. Differing levels of expertise about subject matter--obtained from personal experience, previous classroom instruction, or a content-related excursion--help determine the appropriate level of gloss-directed instruction.

4. Identify the skills and strategies demands of the text. Both formal (e.g., the text analyses of Kintsch, 1974, 1979, in press, and Meyer, 1975) and informal (e.g., mapping and outlining techniques) analyses of the text can yield information that is relevant to the preparation of gloss. This information must be used together with information related to Guidelines 1, 2, and 3. The glosser may be guided, for example, by a variety of text-related questions about organization, such as whether the text is well or poorly organized; whether the reader is skilled in recognizing good or poor organization and knows how to benefit from good, or overcome poor, organization; and whether the teacher's objectives for the student include his/her mastery of strategies for dealing with text organization.

5. Be sensitive to the physical and personal realities of the reader and of the classroom. The glosser must be guided by practical knowledge of what will work in a given milieu. Among the factors that are relevant to this consideration are the amount of time available to read gloss nota-

tions and perform accompanying activities; the nature of grouping arrangements, which acknowledges, in practice, that gloss notations are often written--and the choices prescribed above are made--with "readers" rather than "the reader" in mind; the student's willingness to work with glossed materials (in part determined by the success of demonstration gloss); and the technology that is available for producing glossed materials.

In Part II of this paper, we provide examples to illustrate two stages of gloss, demonstration and development. The explanations which accompany the gloss examples provide elaboration of the guidelines described above. Although we did not write the gloss examples with a specific population of readers (Guideline 2) or with a specific physical setting (Guideline 5) in mind, we wrote some examples that would be more appropriate for some readers than for others. Appropriate, in this context, has to do with readers' ability to deal with specific skills or strategies. For instance, some of the gloss examples assume that readers have a well-developed understanding of a given skill or strategy or have had previous instruction through a group-directed excursion in the skill or strategy. The reader of this paper should also note that our examples of gloss notations are just that--examples. The examples are illustrations of gloss notations for specific reading skills and strategies; they are not intended to depict a progression of demonstration or developmental gloss. In practice, the full development of the skills or strategies identified in this paper would require more intensive elaboration in line with the five guidelines.

In these examples, we have written gloss notations for a wide variety of texts in order to show applicability of gloss in several content areas.

The texts selected include the following content areas: history, economics, health, physics, earth science, biology, English literature, and mathematics. To reiterate, no attempt is made here to demonstrate a "complete" set of gloss notations such as would be required by an entire text, a particular student or group of students, or a given set of instructional objectives.

The format of the examples in the next section presents (1) a page of gloss aligned with excerpts from texts, and (2) explanations of the gloss on the facing page.

REFERENCES

Baker, L., & Brown, A.L. Metacognitive skills of reading. In D. Pearson (Ed.), Handbook of reading research. New York: Longman, in press.

Barr, R. Reader knowledge and classroom instruction. In W. Otto & S. White (Eds.), Reading expository material. New York: Academic Press, in press.

Brown, A.L., & DeLoache, J.S. Skills, plans, and self-regulation. In R.S. Siegler (Ed.), Children's Thinking: What develops? Hillsdale, N.J.: Lawrence Erlbaum Associates, 1978.

Camperell, K. Identification of seventh-grade students' insights about the strategies they used to study and understand an expository text (Technical Report No. 566). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Collins, A., Brown, J.S., & Larkin, K.M. Inference in text understanding. In R.J. Spiro, B. Bruce, & W. Brewer (Eds.), Theoretical issues in reading comprehension. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1981.

Flavell, J.H. Cognitive monitoring. In W.P. Dickson (Ed.), Children's oral communication skills. New York: Academic Press, 1981.

Hayes, D.A., & Tierney, R.J. Increasing background knowledge through analogy: Its effects upon comprehension and learning (Technical Report No. 186). Champaign, Ill.: Center for the Study of Reading, 1980.

Herber, H.L. Teaching reading in content areas. Englewood Cliffs, N.J.: Prentice Hall, 1978.

Kamm, K., & White, S. A description of the procedures used in implementing an objective-based reading program in four schools (Technical Report No. 503). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1979.

Kintsch, W. The representation of meaning in memory. Hillsdale, N.J.: Lawrence Erlbaum Associates, 1974.

Kintsch, W. On modeling comprehension. Educational Psychologist, 1979, 14, 3-14.

Kintsch, W. Text representations. In W. Otto & S. White (Eds.), Reading expository material. New York: Academic Press, in press.

Markman, E.M. Comprehension monitoring. In W.P. Dickson (Ed.), Children's oral communication skills. New York: Academic Press, 1981.

Meyer, B.J.F. Identification of the structure of prose and its implications for the study of reading and memory. Journal of Reading Behavior, 1975, 7, 7-47.

Morrison, B. The identification of reading skills essential for learning in seven content areas at postelementary levels (Technical Report No. 528). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Naus, M. Memory development in the young reader: the combined effects of knowledge base and memory processing. In W. Otto & S. White (Eds.), Reading expository material. New York: Academic Press, in press.

Otto, W., & Askov, E. Rationale and guidelines for the Wisconsin Design for Reading Skill Development. Minneapolis: National Computer Systems, 1974.

Otto, W., & Smith, R.J. Corrective and remedial teaching. Boston: Houghton Mifflin, 1980.

Otto, W., & White, S. (Eds.). Reading expository material. New York: Academic Press, in press.

Otto, W., White, S., & Camperell, K. Text comprehension research to classroom application: A progress report (Theoretical Paper No 87). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Robinson, H.A. Teaching reading and study strategies: The content areas. Boston: Allyn and Bacon, 1978.

Robinson, R.P. Effective study. New York: Harper and Row, 1941.

Rothkopf, E.Z. Adjunct aids, and the control of mathemagenic activities. In W. Otto & S. White (Eds.), Reading expository material. New York: Academic Press, in press.

Schallert, D.L. The significance of knowledge: A synthesis of research related to schema theory. In W. Otto & S. White (Eds.), Reading expository material. New York: Academic Press, in press.

Singer, H. Active comprehension from answering to asking questions. Reading Teacher, 1978, 31, 901-908.

Smirnov, A.A. Problems of the psychology of memory. New York: Plenum Press, 1973.

White, S., & Camperell, K. Investigations into students' understanding of the reading process and their perceptions of their ability to read content material (Working Paper No. 302). Madison: Wisconsin Research and Development Center for Individualized Schooling, 1980.

Winograd, P., & Johnston, P. Comprehension monitoring and the error detection paradigm (Technical Report No. 153). Champaign, Ill.: Center for the Study of Reading, 1980.

Yussen, S.R., & Mathews, S.R., & Hiebert, E. Metacognitive aspects of reading. In W. Otto & S. White (Eds.), Reading expository material. New York: Academic Press, in press.

Epilog

The purpose of this paper is to introduce the concept of gloss and to describe procedures for glossing with a goal of helping students improve their understanding of expository text. The use of gloss-type notations is well supported by the results of many empirical studies, as has already been suggested. While the effects of the glossing procedures outlined here are not conclusive, the results of preliminary try-outs indicate that the technique is palatable and useable for both teachers and students. Yet a technique might be palatable and useable as a welcome diversion, and yet not stand the test of routine class use. The ultimate question, then, is this: Is the glossing technique, which can be used to direct attention to and enhance the understanding of specific points of text, compatible with the procedures that are part of normal classroom routine?

Guszak (1967) reported that nearly 80% of the questions asked by 106 teachers in second, fourth and sixth grades depended upon literal comprehension of the assigned reading. He found also that there was a decrease in the percentage of literal comprehension questions asked with each higher grade level. Although they used different procedures, Hare and Pulliam (1980) obtained results similar to Guszak's with 35 elementary teachers, first through fifth grades, when they used Guszak's system of categorizing questions. They found that teachers asked 74% literal comprehension questions, 10% inferential questions and 15% evaluation questions. Hare and Pulliam also categorized the same questions using a system suggested by Pearson and Johnson (1978) that permits the classifi-

cation of questions as literal (textually explicit) or inferential (textually implicit or scriptally implicit). The percentage of questions that were literal (textually explicit) or inferential (textually implicit) ranged from 68% to 86% of all questions asked. One can argue that these results suggest that gloss notations, which serve to focus attention on matters for literal and inferential comprehension, are in line with the everyday concerns of classroom teachers.

Morrison (1981) reported that observations in six ninth-grade classrooms determined that approximately 50% of the questions asked by five of the teachers required "recall" type responses -- responses at the knowledge level of Bloom's Taxonomy (1956). This result from Morrison's study extends the trend identified by Guszak (1967): that as grade level goes up the proportion of literal questions goes down. Whereas Guszak found 79% of the questions in second grade required a recognition or recall response, the figure dropped to 65% in fourth grade and 58% in sixth grade. Morrison found that by ninth grade the figure was down to approximately 50%. In addition, Morrison found that the percentage of recall questions requiring an answer which was reading dependent was different in different content areas. While 27% of the recall questions in social studies required reading dependent answers, the percentage was 70% in science and 50% in English. Overall, Morrison's results suggest that the gloss notations can complement "normal" classroom procedures at least through the junior high level.

To sum up on the basis of the studies cited, the glossing procedure appears to provide a useful means for augmenting teachers "normal" day-to-

day routines. The suggestion is that the procedure should prove useful as a way to systematize and extend "normal" classroom questioning procedures by bringing together teachers' concurrent concerns for process and content related teaching.

Bloom, B. S. (Ed.), Taxonomy of educational objectives. New York: Longmans, 1956.

Guszak, F. J. Teacher questioning and reading. The Reading Teacher, 1967, 21(3), 227-234.

Hare, V. C., & Pulliam, C. A. "Teacher questioning: A verification and an extension." Journal of Reading Behavior, 1980, 12(1), 69-72.

Morrison, B. S. An investigation of the role of reading in the learning of social studies, science, and English in grade 9. Doctoral Dissertation, University of Wisconsin-Madison, 1981.

Pearson, P. D. & Johnson, D. D. Teaching reading comprehension. New York: Holt, Rinehart and Winston, 1978.

PART II:

EXAMPLES OF GLOSS NOTATION

I. Skills

A. Word Parts

1. Demonstration Gloss

The Effect on Street Life

The old street life characteristic of cities before the Automobile Age disappeared almost entirely. In the pre-automobile city, houses were built close to each other and close to the street. Backyards were small, and so were many of the homes.[1]] 1

In the oldest American cities, like Boston, New York, Charleston, and New Orleans, the irregular pattern of the old walking city may still be observed in the street patterns of the downtown areas. The streetcar neighborhoods and suburbs are easy to identify because the buildings are usually built close to the street. The roads are made as straight as possible, even in hilly areas like San Francisco, to avoid derailing the streetcars.[2]] 2] 3

What It Takes to Build Cars

The amount of resources used in the production of new cars each year is staggering.[3]] 4 5

[1] Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), p. 266.

[2] Idem, p. 284.

[3] Idem, p. 268.

43

1. Pre-automobile is the word automobile and the prefix pre-. Pre- means "before." So "the pre-automobile city" was the city as it was before there were automobiles.

2. Irregular is the word regular and the prefix ir-. Ir- means "not." So "The irregular pattern" is a pattern that is not regular, that is, not straight and evenly spaced.

3. Derailing is the word rail, the prefix de-, and the suffix -ing. De- means "from" or "off." So to derail means "to make go off the rail." "To avoid derailing the streetcars" means "to keep the streetcars from going off the rails."

4. Production is a word made from produce and the suffix -tion. -tion allows produce to act as a noun instead of a verb. To produce means "to make," so production means "making." "The production of new cars" means "the making of new cars."

5. Staggering is the word stagger and the suffix -ing. Here the suffix -ing allows the verb stagger to act as an adjective instead of a verb. To stagger can mean "to walk crooked," "to go back and forth," "not to go straight ahead." And so it sometimes means "not to be sure," or "to hesitate." So staggering means "big enough to make you stop, hesitate, not go straight ahead, notice." An amount of resources that "is staggering" is a big enough amount to make you stop and notice.

44

Notations 1-3 These notations were prepared to show the effect of prefixes on word meaning. As with all demonstration gloss, the reader is merely shown what is taking place. After an analysis of the target words, their meanings are given. Notice that in notation 3 the suffix -ing is mentioned in the analysis and used in the final example--because the word appears in the text with -ing--but the focus of this gloss is the effect of the prefix on the meaning of derail.

Notations 4-5 These notations focus on the effect of suffixes. Notice that these examples--and all the others that deal with suffixes--are based on the concept of a suffix as a word part that changes the word's role in a sentence. This assumes the reader's familiarity with parts of speech, gained from prior instruction, either classroom instruction or an excursion. These demonstration items merely state that the change (e.g. from noun to verb) is accomplished by the suffix; developmental gloss will explicitly explain this concept of the suffix.

2. Developmental Gloss

The rubber is needed for replacement tires for older cars. The lead is mainly used in batteries and as an additive in gasoline. In 1973, three out of four new batteries were placed in used cars.[1] 1 2

Gauss then built a system of non-Euclidean geometry that included his strange new axiom. This new geometry was never published because he felt it was not yet perfected and he did not want to clutter up the subject of mathematics with ideas and theories that might finally lead into a blind alley. Non-Euclidean geometries are mathematical systems built solely on logical reasoning as opposed to the models, diagrams and constructions typical of Euclid's geometry.[2] 3

1. Replacement is the word replace and the suffix -ment. A suffix is a word part added to the end of a base word to allow it to act as a different kind of word, for example, to allow it to act as an adjective instead of a verb. Replace is a verb made from place and the prefix re-. It means "to take the place of." Here -ment allows replace to act as an adjective instead of a verb. It tells the reader about "tires for older cars." The writer could not write about "replace tires," but could write about "replacement tires." What kind of tires are "replacement tires?"

_____

_____

2. Additive is the word add and the suffix -itive. A suffix is a word part added at the end of a base word to allow it to act as a different kind of word, for example, to allow it to act as a noun instead of a verb. Here -itive allows the verb add to act as a noun. The writer could not talk about "an add in gasoline," but could say "an additive in gasoline." Fill in the blank: "An additive in gasoline is something you _____ to gasoline."

3. Non-Euclidean is the name Euclid, the prefix non-, and the suffix -ean. A suffix is a word part added at the end of a root word to allow it to act as a different kind of word, for example, to allow it to act as an adjective instead of a noun. Euclid was a mathematician. Here -ean allows the name Euclid to act as an adjective, to tell about geometries. The writer could not talk about "Euclid geometries" but could talk about "Euclidean geometries." A prefix is a word part added at the beginning of a base word to change its meaning. Non- means "not." Fill in the blanks:

Gauss viewed with great concern the question of the overall validity of Euclidean geometry. Some unusual outcomes of his non-Euclidean geometry included the notion that the sum of the angles of a triangle is less that 180 degrees.[3] 4 5

Some of the intolerance was spurred by extremist groups such as the Ku Klux Klan. This organization used some of the techniques that the old Klan had used during the Reconstruction period. But besides blacks, the Klan's attacks now included Catholics, Jews, political radicals, and almost all foreigners.[4] 6

[1]Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), p. 269.

[2]Denholm, R. Mathematics: Man's Key to Progress, Book B. Chicago: Lyons and Carnahan (1970), p. 88.

[3]Idem, p. 89.

[4]Buggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), p. 587.

Non-Euclidean geometries are geometries that were _____ invented by the mathematician named _____.

4. Validity is the word valid and the suffix -ity, which allows valid to act as a noun instead of an adjective. Fill in the blanks:

   Valid means "true" or "sound."
   _____ means "truth" or "soundness."

5. Unusual is the word usual and the prefix un-. A prefix is a word part added at the beginning of a base word to change its meaning. Un- means "not." What does unusual mean?

   _____

6. In "spurred by extremist groups," the writer used the suffix -ist at the end of the word extreme so that it could act as an _____ to tell about _____.

Notations 1-3	With developmental gloss, the concept of the suffix is explicitly spelled out and its implications are developed. This assumes the reader's familiarity with parts of speech, gained from prior instruction, either classroom instruction or an excursion. In addition, the gloss involves the reader by asking for written application of the concept that has been explained. Notice that in notation 3 the prefix non- is mentioned in the analysis, and its meaning is given, but the focus is the role of the suffix.
Notation 5	Developmental gloss goes beyond just showing that a prefix has changed the meaning of a base word; it gives an explicit definition of a prefix, based on a concept of a prefix as a word part that changes the meaning of the base word. And the reader applies that concept in his or her written answer to the gloss question.
Notations 4&6	By the time readers encounter follow-up activities like these, they have been introduced by gloss to the concepts necessary for their successful completion. These are application/practice activities (a necessary part of gloss).

Other methods of desalination

Solar distillation is only one of several ways to desalinate ocean water.[1] 7

Gauss viewed with great concern the question of the overall validity of Euclidean geometry. Some unusual outcomes of his non-Euclidean geometry included the notion that the sum of the angles of a triangle is less that 180 degrees.[2] 8 9

[1] Magnoli, M., Douglass, L., & Ellis, D. Exploring Earth and Space. River Forest, Ill.: Laidlow Bros. (1978), p. 459.

[2] Denholm, R. Mathematics: Man's Key to Progress, Book B. Chicago: Lyons and Carnahan (1970), p. 89.

7. Desalinate is the word root sal- from the word salt, the prefix de-, and the suffix -inate. De- means "remove from" and -inate allows the word to act as a verb. To desalinate means to _____. Desalination is the word desalinate and the suffix -tion. -tion allows desalinate to act as a noun instead of a verb. To remove the salt from something is to desalinate something and when you talk about that process you talk about _____.

8. Overall is the word over and the word all combined to make a new word that has the meanings of its two parts. Fill in the blanks:

   When writing, "overall validity of Euclidean geometry," the writer is looking _____ the whole system of Euclidean geometry and talking about _____ of it.

9. Outcome is the word out combined with the word come. What does outcomes mean in "outcomes of his non-Euclidean geometry?

_____

Notation 7	The focus of this notation is prefixes and suffixes and would follow previous gloss about both affixes. All parts of the word are addressed as its meaning and role in the sentence are built in step-by-step application of previously explained concepts.
Notations 8-9	These notations develop readers' skill with word parts that are not affixes, that can stand alone as words and bring their meanings to the compound words in which they appear. This concept might have been explained more explicitly in previous gloss, depending upon the reader's acquaintance with compound words and/or aptitude for word meaning.

B. Context

1. Demonstration Gloss

The second column lists the same figures for the manufacture of new vehicles plus the "aftermarket"; that is, the parts and fuel needed by cars after they are sold.[1] 1

In 1880, Republican James Garfield had been elected on a platform which called for change in civil service--the system of appointing people to certain government jobs.[2] 2

Ever since Andrew Jackson's presidency people had been appointed to government positions on the basis of the "spoils system." This was the idea that "to the victor" in a presidential election "belong the spoils" of office. As a result, the only way people could obtain and keep important positions in government was to be in the favor of the administration.[3] 3

Populism

"From all parts of the United States [they came], some bumping along hundreds of miles [by horse and carriage], others using their last folding money for train fare." Fifteen hundred delegates representing Farmers Alliances, Knights of Labor, and other farm and labor groups, gathered in Omaha, Nebraska, in July 1892. They were prepared to launch an all-out attack on the economic and political forces of America . . . 4

Populists favored election of United States senators by popular vote of the people rather than by those in state government.[4]

Propaganda--Both Sides Distort the News

Propaganda is a method used to persuade people to believe certain things. It plays on emotions and distorts the truth. Both Britain and Germany used propaganda to try to draw the United States into the war. One example is the invasion of Belgium . . . Most Americans gradually began to believe that the Germans were cruel aggressors and the cause of the war.[5] 5

1. The word aftermarket is followed by its meaning. The rest of the sentence tells that the aftermarket for new vehicles is "the parts and fuel needed by cars after they are sold."

2. The words civil service are followed by their meaning. The rest of the sentence after the dash tells that civil service is "the system of appointing people to certain government jobs."

3. The words spoils system are explained by the sentences that follow them. They come from the expression, "To the victor belong the spoils." Spoils were what winners took from the losers of a war. From that, spoils came to mean public offices that become the property of the winner of an election. The new president had the power to hire or fire people for important positions in his administration; so people in those positions, or wanting to be in them, had to please the new president, or "be in the favor of the administration."

4. The eight paragraphs following the heading Populism contain clues about what is meant by the word populism.

   The first paragraph tells that populism involved farmers and laborers in an "all-out attack on the economic and political forces of America." The second paragraph tells that populism was a reform movement and that it formed a political party with its own presidential candidate.

   The next six paragraphs list some of the economic and political reforms that populism stood for.

5. The heading "Propoganda--Both Sides Distort the News," tells that propoganda involves distorting the news. The first two sentences of the section that follows give a definition of

[1]Danser, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), p. 268.

[2]Duggey, J., Danser, G., Mitsakos, C., & Risinger, C. America: America! Glenview, Ill.: Scott, Foresman and Co. (1977), p. 543.

[3]Idem, p. 543.

[4]Idem, p. 543.

[5]Idem, p. 573.

the word propoganda: "Propoganda is a method used to persuade people to believe certain things. It plays on emotions and distorts the truth." The rest of the section gives an example of the use of propoganda during World War I. Notice that the third paragraph describes the play on people's emotions and the fourth paragraph tells that truth was distorted. The fifth paragraph tells who was persuaded and what they were persuaded to believe.

Notations 1-5 These items show a progression of ways that texts help the reader determine meanings of words, moving from explicit definition of a word in the context of the sentence (notations 1 and 2), to explanation of an expression in the context of several sentences (notation 3), to development of a concept in the context of several paragraphs (notations 4 and 5). (Because of space limitations, not all of the paragraphs referred to in notations 4 and 5 have been reproduced here.)

Introduced in 1908, the Model T was built on assembly lines in Detroit. This type of production made the car very cheap. A two-seat "runabout" in 1925 cost only $260. The low cost made the Model T available to a large number of Americans.[1] 6

The automobile also created new businesses. Gas stations, roadside restaurants, and cabins, the forerunners of motor hotels, or "motels," sprang up everywhere.[2] 7

[1] Buggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), p. 584.

[2] Idem.

6. "Runabout" can be defined from clues in the surrounding sentences. A "runabout" was a very cheap, mass-produced, two-seated, Model-T car.

7. The word cabins in this sentence does not describe a pioneer family's log home. " . . . the forerunners of motor hotels, or motels" is a clue that these cabins served the same purpose as modern motel units. Like motel units, they were rented by tourists, but they were "cabins" - small cottages or huts.

57

55

Notation 6 — This shows the reader that when a word is not explicitly defined, there may be clues in the context that can help him or her infer a definition.

Notation 7 — This is an example of gloss that helps the reader use context to understand an unusual use of a familiar word.

2. Developmental gloss

Intolerance] 1

Restrictions were placed by the federal government on immigration during the Twenties. Quota systems were set up that severely limited the number of southern and eastern Europeans who could come to the United States. They almost entirely excluded immigration from African or Asian countries.

This nativism or lack of tolerance that many Americans showed people who were not Protestant, white or of British or northern European background became quite widespread during the Twenties.] 2
Intolerance took on many forms. But it was always directed at minority groups.

Some of the intolerance was spurred by extremist groups such as the Ku Klux Klan. This organization used some of the techniques that the old Klan had used during the Reconstruction period. But besides blacks, the Klan's attacks now included Catholics, Jews, political radicals, and almost all foreigners.[1]] 3

[1] Buggey, J., Danzer, G., Mitsakos, C., and Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), p. 587.

1. Headings are often followed by sections of text that explain what the words in the heading mean. Here the heading Intolerance is explained in the three paragraphs that follow the heading. Important clues are "restrictions . . . on immigration . . . nativism . . . directed at minority groups . . . extremist groups such as the Ku Klux Klan."

2. An unfamiliar word is often followed by an explanation. Here the word nativism is followed by the word or, which sometimes signals an explanation. The words from "or" through "background" explain what nativism was. Write a definition of nativism:

_____

_____

3. An understanding of unfamiliar words can often be gotten from examples given by the writer. Notice the example, "such as the Ku Klux Klan," and write what you think extremist groups are: _____

_____

Notations 1-3 The first sentence of each of these notations generalizes beyond the example in the text in order to develop skills that the reader can apply to other reading. In addition--as with all developmental gloss--these notations ask for written application of the skills being taught.

Intolerance

Restrictions were placed by the federal government on immigration during the Twenties. Quota systems were set up that severely limited the number of southern and eastern Europeans who could come to the United States. They almost entirely excluded immigration from African or Asian countries.

This nativism or lack of tolerance that many Americans showed people who were not Protestant, white, or of British or northern European background became quite widespread during the Twenties. Intolerance took on many forms. But it was always directed at minority groups.[1] 4

Prohibition

The 18th Amendment, which outlawed alcoholic beverages, was passed by Congress in 1920 and ratified by the states in good faith. However, in many cases, it made liquor and drinking more of a problem than it was before prohibition. 5

"Bootlegging," or the illegal sale of alcoholic beverages, became commonplace. It ranged from the manufacture of home-brewed beer and "bathtub" gin to the illegal smuggling of liquor across the Mexican and Canadian borders.[2] 6 7

The building of "hard-top" roads in the twenties and the introduction of balloon tires made automobile riding less noisy and less dusty.[3] 8

Gauss then built a system of non-Euclidean geometry that included his strange new axiom. This new geometry was never published because he felt it was not yet perfected and he did not want to clutter up the subject of mathematics with ideas and theories that might finally lead into a blind alley. Non-Euclidean geome- 9

4. The second paragraph says that "Intolerance took on many forms. But it was always directed at minority groups." Examples of minority groups are given in the paragraph that follows. List them here:

_____

_____

5. The first sentence of the section headed Prohibition tells what the word prohibition means. Fill in the blanks:

Prohibition was the outlawing of _____

_____ by the Eighteenth Amendment.

6. The word "bootlegging" is followed by its definition. Write a definition for "bootlegging": _____

_____

7. "Bathtub" gin is mentioned along with "home-brewed beer." This is a clue to its meaning. Write what you think "bathtub" gin was:

_____

_____

8. What clues in the rest of this sentence help you understand what "hard top" roads and balloon tires were?

_____

_____

9. Copy the sentence in this paragraph that describes non-Euclidean geometries:

_____

_____

trics are mathematical systems built solely on logical reasoning as opposed to the models, diagrams and constructions typical of Euclid's geometry.[4]

Longevity, its problems and challenge. Sometimes, when we solve one problem, we create another. We have increased our lifespan through the control of infectious disease. Now, an important public health problem in the United States is how to promote a happy and useful life for the elderly.[5]

10

Suppose you tell a friend that the temperature is 25°C (68°F) and that it is raining where you live. You would be describing the weather. However, you might describe where you live as having cold winters, cool springs and falls, and hot summers. In this case, you would be describing the *climate* [KLY-mahtr]. Climate is a general weather pattern for a place over a number of years.[6]

11

[1] Buggey, J., Danner, G., Mitsakos, C., & Risinger, C. *America! America!* Glenview, Ill.: Scott, Foresman and Co. (1977), p. 587.

[2] Idem, p. 588.

[3] Idem, p. 584.

[4] Denholm, H. *Mathematics! Man's Key to Progress, Book B.* Chicago: Lyons and Carnahan (1970), p. 88.

[5] Otto, J., Julian, C., & Tather, J. *Modern Health.* N.Y.: Holt, Rinehart, and Winston (1976), p. 479.

[6] Nagnoli, M., Douglass, L., & Ellis, D. *Exploring Earth and Space.* River Forest, Ill.: Laidlaw Bros. (1978), p. 155.

10. Copy the sentence in this paragraph which is a clue that the word *longevity* means "having a long life."

_____

_____

_____

11. Copy the sentence in this paragraph that gives an example of a *weather* description: _____

_____

Copy the sentence in this paragraph that gives an example of a description of *climate*: _____

_____

Notations 4-11 To help readers apply the skills, notations 4, 5, and 6 direct them to the specific parts of the text where helpful definitions or examples can be found, and notation 7 actually provides the helpful clue from the text. Items 8, 9, 10, and 11 give readers less guidance in finding the clue or sentence that will help them construct the meaning of the target expression.

The PTF Principle

Theory suggests that the ability-to-pay principle is the only defensible principle of taxation. We do not live in a world of theory, however. In our real world there is a third "principle" of taxation, based *not* on logic or theory but on political factors.

This is the "plucking the most feathers with the least squawks" principle, or simply, the "plucking the feathers" (PTF) principle. It is always politically unpleasant to raise taxes, but when legislative bodies decide that they must, they often do what is least painful politically.

A senator up for re-election might hesitate to urge an increase in income taxes for fear that such a move would cost him votes. If additional government revenues were needed, he might instead favor a tax which was less noticeable and less painful. He might advocate a one-cent increase in the gasoline tax. This seems quite minor. Huge sums of money could be raised in this way with less danger of a public protest, and with less danger of his losing office.

This is not an *accepted* principle of taxation and public officials will seldom admit to its use. Still, it would be totally unrealistic to deny that some taxes are of the PTF variety.[1]

[1] Brown, J., & Wolf, H. Economics: Principles and Practices. Columbus, Ohio: Charles E. Merrill Publishing Co. (1968), p. 201.

12

12. The four paragraphs following the heading, The PTF Principle, explain the meaning of that term. The first paragraph tells that it is a principle of taxation "based not on logic or theory." Reread the first paragraph. What is the PTF Principle based on? _____

_____

The second paragraph tells that the initials PTF stand for "plucking the feathers," which is a shortened version of

_____

_____

The writer expects the reader to understand that squawking birds stand for taxpayers and their feathers stand for what the taxpayers have to give up, that is, their _____.

The third paragraph gives an example of the PTF Principle in action, a senator who favors raising gasoline taxes instead of income taxes because gasoline taxes are less _____ and less _____, and because the senator doesn't want voters to _____.

The fourth paragraph says that the PTF Principle (is / is not) an accepted principle, but it (does / does not) explain how lawmakers often make tax laws.

Notation 12

This notation is intended to follow up on previous gloss instruction in the use of context. The four-paragraph text develops an understanding of the PTF Principle, using definition, imagery, and example. Notice the variety of kinds of written responses that are asked for.

C. Paraphrase

1. Demonstration gloss

In his writings, Marx stresses that history is the result of economics only. Marx did not feel that politics, philosophy, religion, or other factors influenced history.[1] 1

Our epoch [time period], the epoch of the bourgeoisie, possesses, however, this distinctive feature; it has simplified the class antagonisms. Society as a whole is more and more splitting up into two great hostile camps, into two great classes directly facing each other: Bourgeoisie and Proletariat.[2] 2

To thrive, fascism needs enemies. When none are available, fictitious ones are created to justify the complete obedience of the population.[3] 3

[1]Capelluti, F., & Grossman, R. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970), p. 450.

[2]Idem.

[3]Idem, p. 483.

1. Notice that the second sentence here is another way of saying the first sentence. These two sentences together help you to understand how Marx viewed history.

2. Another way of saying these two sentences is:

   This is the time when the capitalist (owners') class is supreme and the division of society is simple. There are just two classes - the capitalist class (the owners) and the working class (the laborers) - and they are the enemies of each other.

3. Another way of saying these two sentences is:

   Fascists become more powerful by scaring the people into obeying them. They do this by always reminding them of their enemies, even if they have to make up enemies.

Notation 1	This notation alerts the reader to a paraphrase within the text.
Notations 2-3	These notations each show how a section of text might be paraphrased. While the reason for paraphrasing is that it may make the meaning of the text clearer to the reader, this is not explicitly stated in demonstration gloss.

2. Developmental gloss

Every individual is required to give himself totally to the state since he and his activities are at its service.[1] 1

Instead of being allowed to vibrate freely after an initial displacement, a system may be driven by continued application of force from the outside. Whenever a system is made to vibrate by a periodic force, the resulting motion is called *forced oscillation*. Examples are the vibration of a factory structure caused by the running of heavy machinery or the motion of electrons in a circuit connected to an alternating-current generator. 2

Forced oscillations take place with the frequency (or period) of the driving force rather than with the natural frequency of the system. The amplitude of the response depends on how the driving frequency is related to the natural frequency. If these frequencies are nearly the same, even a very weak driving force can, in time, feed enough energy into the system to give it a large amplitude of motion. This condition is called *resonance*. A heavy pendulum can be made ultimately to swing with a large amplitude by giving it small taps in the tempo of its natural frequency. The taps must be applied in the same direction as the instantaneous motion of the pendulum. Any *submultiple* ($\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$ etc.) of the natural frequency will also produce resonance.[2] 3 4

Shock. *Shock* is a depressed state of the circulatory system and occurs in all serious injuries. Blood collects in vessels in the abdominal cavity. As a result, the cells of the body, particularly the brain, suffer from lack of blood.[3] 5

1. To paraphrase a sentence is to say it another way. Paraphrasing a sentence may help a reader to understand it.

   Reread the sentence in the text and then fill in the blanks in this paraphrase:

   Everything a person does must be done for the _____ _____.

2. Fill in the blanks in the following paraphrase of the sentence in the text:

   Forced oscillation is the _____ of a system resulting from _____ caused by a periodic force.

3. Fill in the blanks in the following paraphrase of the sentence in the text:

   How much the system responds depends on the relation of two frequencies: The _____ frequency and the _____ frequency.

4. Fill in the blanks in the following paraphrase of the two sentences in the text:

   Resonance is the condition that results when the frequencies are nearly the same so that _____ can be fed into the system, even by a _____ _____ _____ force.

5. Complete this paraphrase of the sentences in the text:

   Shock occurs in all serious injuries when the _____ _____ slows down. As a result blood collects in _____ and does not go to _____.

What is cancer? Cancer is a disorderly growth of cells in body tissue. A growing mass of cancerous cells, referred to as a *malignant tumor*, crowds out normal tissue and absorbs vital nutrients.[4]

[1]Capaliuti, F., & Grossman, R. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970), p. 483.

[2]Freeman, I. Physics, Principles and Insights. N.Y.: McGraw-Hill (1973), p. 287.

[3]Otto, J., Julian, C., & Tether, J. Modern Health. N.Y.: Holt, Rinehart, and Winston (1976), p. 499.

[4]Idem, p. 441.

6. Complete the following paraphrase of the sentences in the text:

Cancer is a growth of body tissue cells that is _____ _____.

A malignant tumor is a _____ _____.

Notations 1-6 These notations demonstrate a progression of skill development. Notice, in notation 1, that developmental gloss gives a definition of paraphrase and a reason for paraphrasing. Notations 2 thru 6 move from filling in one-word blanks in paraphrases to completing open-ended summary questions. Readers' success with these activities depends upon the amount of past experience they have had with paraphrasing--whether from previous classroom instruction, an excursion, or extended gloss instruction at one or more of the points on the progression illustrated by these examples. Also note that for a fill-in-the-blank paraphrase to help the readers to better understand the text, it must be written with their prior knowledge of the content in mind.

Treatment of shock. Keep the patient lying down. Cover enough to maintain body heat. If the victim is in shock, raise the feet 8 to 12 inches above the head and chest. Do not raise the feet if there is a head injury, an unsplinted fracture, difficulty in breathing, or if such movement causes severe pain. Get medical help immediately![1] 7

Frostbite is an actual freezing of tissue. The body should be warmed by applying blankets. *Never* rub or massage the skin; you will damage the part. Never allow the victim of frostbitten feet to walk or move his feet. Do not expose the person to intense local heat. Warm the affected part *gradually* in a pan of warm water or wrap in a warm blanket. Apply warm, wet compresses to a frozen nose, face, or ear. Call a doctor.[2] 8

[1]Otto, J., Julian, C., & Tether, J. Modern Health. N.Y.: Holt, Rinehart, and Winston (1976), p. 499.

[2]Idem, p. 512.

7. This section may be paraphrased by listing "do's" and "don'ts." Complete the following:

When treating shock,

do 1) _____
2) _____
3) _____
and 4) raise the feet.

But don't raise the feet if

1) _____
2) _____
3) _____
4) _____

8. This section may be paraphrased by listing "do's" and "don'ts." Complete the following:

When treating frostbite,

do 1) _____
2) _____
3) _____
4) _____

and don't 1) _____
2) _____
3) _____

Notations 7-8 These items are intended to help readers paraphrase by looking at a text as a list. It is important to note that such a procedure is applicable only to texts with the kind of organization shown here.

D. Central Thought

1. Demonstration gloss

Different cultures allow children different degrees of freedom. In some cultures, children are closely watched at an early age. As they grow older, they are given more and more freedom. In Japan, on the other hand, children are allowed to do almost anything they want until the age of four. Children are allowed to eat, sleep, and play whenever they wish. A child who breaks a dish is not punished. But when children reach the age of four, the family begins to give them less and less freedom to do what they want. Children are slowly, but without letup, forced into the pattern of their culture. In some cultures, there are no hot stoves to touch, no second-story windows to fall out of, no speeding cars to worry about. Why would a child in such a culture have more freedom than a child growing up in Paris, France?[1] 1

The scientific discoveries of the late sixteenth and seventeenth centuries had a tremendous effect on European thinkers. What resulted was a new optimism and faith in mankind and in progress. The men of the eighteenth century believed that man could solve any problem through the use of reason. Progress, they argued, could continue as a constant development toward human happiness.[2] 2

Marrying off a girl can be very costly for an upper- or middle-class family in India. The bride's family is expected to make a large settlement in cash and gifts with the groom.

A study by the government showed that a man who has gone to a "name" college and has a good job could expect up to $12,000 from a girl's parents for agreeing to marry . . . 3

1. Notice that the first sentence of this section tells what the whole section is about.

2. Notice that the third sentence of this paragraph is a summary of the paragraph.

3. These three paragraphs are summarized by the first sentence of section]3.

Among upper-class people in southern India, the dowry has come to mean diamond earrings, a pair of gold bracelets, and an expensive necklace. In the northern Punjab, a car, refrigerator, and stereo are thought a must.[3]

[1]Ver Steeg, C. World Cultures. Glenview, Ill.: Scott, Foresman and Co. (1977), p. 146.

[2]Capelluti, P., & Greenman, E. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970), p. 307.

[3]Ver Steeg, C. World Cultures. Glenview, Ill.: Scott, Foresman and Co. (1977), p. 180.

Notations 1-3 These notations merely show readers that a sentence may tell what a section of text is about, and that that sentence may summarize a paragraph or more than a paragraph.

2. Developmental gloss

As you have seen, families are different around the world. Families are also changing in every culture in the world today. They are not necessarily changing in the same way in every culture. And they are not changing at the same rate. But they are changing.[1] 1

The Substitution Method of Solving Simultaneous Equations

Some systems of equations can be solved readily by another algebraic method called the Substitution Method. This method uses the fact that both equations of a simultaneous system in two variables must be true at the same time. It consists of transforming one equation so that we have an expression for one of the two variables in terms of the other. This expression is then substituted in the other equation.[2] 2

Milton has the reputation of having been in his youth eminently beautiful, so as to have been called the Lady of his college. His hair, which was of a light brown, parted at the foretop, and hung down upon his shoulders, according to the picture which he has given of Adam . . .

His eyes are said never to have been bright; but, if he was a dexterous fencer, they must have been once quick.[3] 3

You are familiar with the set of whole numbers, the basic operations performed on them, and the properties of those operations. The *whole number system* is the set containing zero and the positive integers, together with the operations and their properties.[4] 4

[1]Ver Steeg, C. World Cultures. Glenview, Ill.: Scott, Foresman and Co. (1977), p. 172.

[2]Denholm, R., & Dolciani, M. Elementary Algebra, Part 2. Boston: Houghton Mifflin Co. (1973), p. 374.

[3]McDonnell, H., Nakadate, N., Pfordresher, J., & Shoemate, T. England in Literature. Glenview, Ill.: Scott, Foresman, and Co. (1979), p. 278.

[4]Denholm, R., & Dolciani, M. Elementary Algebra, Part 2. Boston: Houghton Mifflin Co. (1973), p. 391.

1. The central thought of a section of text tells about the topic of the section, or what the section is about. This section tells something about families. Look for a word that is used often in this section and that tells about families. The topic of this section is _____ families.

2. Determining the topic of a section of text will help you to decide what its central thought is. The topic of this section of text can be given in two words. The writer has helped by providing a heading for this section of text and by capitalizing the two words that give its topic. Copy them here:

_____ _____

3. The topic of this section of text is not given by a heading, nor by any words that can be copied directly from the text. If you look, however, at many specific examples of what the writer is telling about, you can determine what the topic is, or what the section tells about in general. Specifically it describes Milton's hair, his stature, his skill with the sword, and his eyes. In general, then, this section is about Milton's _____.

4. In this section of text, the topic is given by the italicized words, whole number system. If you look, however, at the sentence containing those words, you can find out what this section tells about the whole number system. The idea given by that sentence is the central thought of this section. Often the central thought of a section of text is given by such a topic sentence, found in the section of text. Copy the topic sentence of this section here:

_____

_____

Notations 1-10 — These notations follow a progression, helping the student to understand what a central thought is and how to identify it in a variety of situations. Notation 1 defines central thought and topic. It also suggests a strategy for identifying the topic of a section, as a guide for filling in the blank. The first sentence in notation 2 instructs the student about the relation of topic to central thought. This gloss item was written with the organization of the text in mind, i.e., how the heading helps the reader apply this skill.

Notation 3 — This notation helps the student to infer the topic of the glossed section of text. This is a common situation, in which the topic is not explicitly stated in the text.

Notation 4 — Notation 4 helps the reader to identify the topic sentence of the glossed section of text and generalizes about the relationship of topic sentence and central thought.

Early in the study of arithmetic the number system which you used was extended to include *fractional numbers*, the numbers that can be represented by numerals like $^5/_8$ and $^7/_2$, called "fractions." Including the fractions allowed you to solve problems like $3 \div 5 = ?$, which has no solution in the set of whole numbers. The set of all positive numbers that can be written in fractional form is called the set of *positive rational numbers*. The positive integers belong to this set, because any integer can be written in fractional form. For example

$$9 = \frac{9}{1} = \frac{18}{2} = \frac{27}{3} = \frac{36}{4}, \text{ and so on.}$$

Notice that *zero* is not included in the set of positive rational numbers, since it is not positive. Zero is *neither* positive *nor* negative.[1]

5

We further extended our number system to include all *negative* numbers that can be expressed in fractional form. This extension allows us to solve such problems as $4 - 7 = ?$ and $-3 \div 4 = ?$. The negative numbers, which are the opposites of the positive numbers, make up the set of *negative rational numbers*.[2]

6

Once in school, the French child finally escapes from the complete family supervision of his life. French middle-class parents resent the loss of their children to the schools. Thus, they usually take a critical view of education. School is a necessary evil that a child must suffer if he is to be successful. With this attitude at home, the French child usually develops very little school spirit.[3]

7

What It Takes to Build Cars

The amount of resources used in the production of new cars each year is staggering. Look at the table below and note in the first column the percentage of each metal or other material used

8

5. The topic of this section of text is positive rational numbers. Find and copy the topic sentence that gives the central thought of this section of text:

_____

_____

6. The topic of this section of text is _____. The topic sentence that tells the central thought of this section is:

_____

_____

7. Often the central thought of a section of text is given by the first sentence. Reread this section and write its central thought here:

_____

_____

8. Reread this section of text and copy the sentence that tells its central thought:

_____

_____

in the production of new cars in 1973 . . . In 1973, three out of four new batteries were placed in used cars.[4]

Gauss then built a system of non-Euclidean geometry that included his strange new axiom. This new geometry was never published because he felt it was not yet perfected and he did not want to clutter up the subject of mathematics with ideas and theories that might finally lead into a blind alley. Non-Euclidean geometries are mathematical systems built solely on logical reasoning as opposed to the models, diagrams and constructions typical of Euclid's geometry.[5]

9

The practice, left over from very early times, is against the law. But it is still followed. Many Indian girls feel boys are more interested in the bank accounts of possible fathers-in-law than in the girls they are marrying.

An "Anti-Dowry Week" was held in New Delhi not long ago to drawn attention to the problem. People visited New Delhi colleges getting boys to promise to boycott the dowry system.[6]

10

[1]Denholm, R., & Dolciani, M. Elementary Algebra, Part 2. Boston: Houghton Mifflin Co. (1973), p. 391.

[2]Idem, p. 392.

[3]Ver Steeg, C. World Cultures. Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 160-161.

[4]Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), pp. 268-269.

[5]Denholm, R. Mathematics: Man's Key to Progress, Book B. Chicago: Lyons and Carnahan (1970), p. 88.

[6]Ver Steeg, C. World Cultures. Glenview, Ill.: Scott, Foresman and Co. (1977), p. 180.

9. The central thought of a section of text is not always given by its first sentence. The topic of this section is non-Euclidean geometries. Look beyond the first sentence to find a sentence that tells what non-Euclidean geometries are, and copy it here:

_____

_____

10. Sometimes the central thought of a sentence is not given by any one sentence in the text. The topic of this section is the dowry system, but there is no topic sentence to copy. To give the central thought of this section you must combine ideas found throughout it. Reread this section and complete this telling of its central thought:

The dowry system is illegal and is opposed by females, but

_____

Notations 5-10 Notations 5 and 6 ask for application of this generalization. With 7 thru 10, the student is taken from texts in which the central thought is given by the first sentence, to texts where it is given by a later sentence, to finally a text in which the central thought is not explicitly given, but must be constructed.

E. Relationships/Conclusions

1. Demonstration gloss

There is no question that total spending by the various levels of government has risen sharply since the turn of the century. Yet few people believe that the increase has been totally unnecessary. Two world wars and years of international tension have required heavy federal expenditures for defense. The regulation of banks, railroads, and public utilities has the approval of most citizens.

Nor do the majority of people oppose government expenditures for certain welfare purposes.[1]

1

Now that we have studied the demand for goods and services, we shall turn to the market force of supply. We need to know why a supplier makes goods and services available to consumers in the quantities they want. In other words, what factors influence sellers to offer more or less for sale?

Just as we thought of demand as the desires people have for particular products, we can think of supply as the willingness of sellers to provide such products. In the case of demand, however, we realized that merely wanting a product was not enough. Rather, the desire had to be coupled with a willingness and an ability to pay a *price* for that product.

In the case of supply, we see the mirror image of this situation. People are willing to provide services, give up their stock of goods, and build things for others if and when they are given an adequate *price*.

On the demand side, prices force people to choose the products they want. On the supply side, prices induce sellers to provide these products. Just what the price of a particular product will be and, thus, just how much will be bought and sold, depends upon the interaction of the market forces of demand and supply.[2]

2

[1] Brown, J., & Wolf, H. Economics: Principles and Practices. Columbus, Ohio: Charles E. Merrill Publishing Co. (1968), p. 228.

[2] Idem, p. 118.

1. This section describes the relationship between the rise in government spending and three roles of government in our society: defense, regulation, and maintainence of people's welfare. The government spends money on war; on keeping banks, railroads, and public utilities in line; and on caring for needy citizens. If people believe that these are necessary activities of government, then they must believe that the resulting rising costs of government are also necessary.

2. This section describes the relationship between supply and demand in our economy. The second and third paragraphs tell that supply and demand are related in terms of the role of price. This relationship is summarized in the fourth paragraph.

Notations 1-2 Demonstration gloss merely alerts the reader to relationships among the text's concepts, were those relationships are important to comprehension. Gloss may make the relationship explicit when the author has not done so (e.g. notation 1) or it may direct the reader to the part of the text where the author has explained the relationship (e.g. notation 2).

2. Developmental gloss

Thomas Jefferson had dreamed of an America where "every one may have land to labor for himself." But, in the late 1800s, 11 million Americans left rural areas for the cities. Many farmers left their farms reluctantly. The increased use of machines to replace labor in agriculture forced many of them off the land. Machines, like the McCormick harvester, increased farm production. But they only were useful to the owners of big farms who could afford to own and operate them. Farmers on small plots couldn't produce crops cheaply enough to compete with the machine-harvested crops of the big farms. Others left the farms because they were attracted by jobs and new opportunities in the cities.

Many southerners headed for the cities of the North during this time. The large numbers of southern blacks who moved north in the early 1900s led some black newspapers to call it the Great Migration. The Chicago *Defender* printed editorials urging blacks to come north on the Illinois Central Railroad. It offered to find jobs for them and even arranged for loans for tickets.[1]

1

Instead of being allowed to vibrate freely after an initial displacement, a system may be driven by continued application of force from the outside. Whenever a system is made to vibrate by a periodic force, the resulting motion is called *forced oscillation*. Examples are the vibration of a factory structure caused by the running of heavy machinery or the motion of electrons in a circuit connected to an alternating-current generator.

Forced oscillations take place with the frequency (or period) of the driving force rather than with the natural frequency of the system. The amplitude of the response depends on how the driving frequency is related to the natural frequency. If these frequencies are nearly the same, even a very weak driving force can, in time,

2

1. This section tells about America's change from a rural to an urban society. Seeing the relationship between such a change (an effect) and its causes will help the reader understand this section. Many such causes are given in this section. Complete this list of causes:

   1) The increased use of machines to replace labor in agriculture forced many farmers off the land.

   2) Small farmers were forced out of business by big farms.

   3) _____

   _____

   This list of causes of America's change from a rural to an urban society shows how economic and sociological factors interact.

2. This section describes the relationship between forced oscillation and resonance. Fill in the blanks:

   Resonance is a condition _____ by forced oscillation when the _____ force is in the right direction and has the right tempo.

   This is a cause-and-effect relationship.

feed enough energy into the system to give it a large amplitude of motion. This condition is called *resonance*. A heavy pendulum can be made ultimately to swing with a large amplitude by giving it small taps in the tempo of its natural frequency. The taps must be applied in the same direction as the instantaneous motion of the pendulum. Any *submultiple* ($\frac{1}{2}, \frac{1}{3}, \frac{1}{4}$) of the natural frequency will also produce resonance.[2]

The passage of the 19th Amendment climaxed a long struggle by women for the right to vote. Women had hoped to get the vote along with blacks after the Civil War. But the 15th Amendment definitely limited suffrage, or the right to vote, to black *males*.

Defeated on the national level, many women turned their energies toward getting women's suffrage laws passed on the state level. Dedicated suffragists like Carrie Chapman Catt, crisscrossed the country, campaigning for women's suffrage wherever there was a state referendum on the issue. Most of these campaigns were unsuccessful until 1890. Then Wyoming entered the Union with voting rights for women. Women intensified their efforts and other western states passed women's suffrage in the 1890s and 1900s.

Several things contributed to the success of the suffrage movement. Suffragists broadened their appeal. They began to pay more attention to the problems of working-class women. World War I gave the suffrage movement a big boost. During World War I, as in the Civil War, women took over many jobs traditionally held by men. Thousands of women replaced men in office jobs in Washington, D.C. In the iron and steel industry alone, the number of women workers increased three times during the war years. More and more Americans began to feel that a country that relied on women in war, shouldn't deny them the vote during peace.[3]

3

3. This section describes the women's suffrage movement. The last paragraph gives causes for its success. Reread this section and list two causes here:

_____

_____

[1]Buggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 451-452.

[2]Freeman, I. Physics, Principles and Insights. N.Y.: McGraw-Hill (1973), p. 287.

[3]Buggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 583-584.

One reason for the boom of the 1920s was "wild speculation." *Speculation* is buying stocks when there is a large risk in the hope of selling them later for a profit. As more people bought shares in the stock market, the higher prices rose. This in turn increased speculation. Shoemakers and bakers, widows and waiters, college students and factory workers invested their savings in stocks. Many even borrowed in order to invest and "get rich quick."

The federal government under Harding and Coolidge had developed a *laissez-faire* attitude toward business. Agencies of the government that might have seen the dangers of wild speculation preferred to look the other way.

Without government regulation, much was happening to business that was questionable. Some people set up corporations by just paying fees and without making yearly reports or following any of the standard accounting rules. In many companies, executives or certain investors got "inside" information and knew when to buy or sell company stock in order to make money. But "outside" investors received no such information.

Some economists tried to warn the country about the dangers of this wild speculation. In September 1929, Roger W. Babson predicted: "There is a crash coming, and it may be a terrific one, involving a decline of from 60 to 80 points in [stock prices]." But people like Babson were accused of "trying to discredit or stop American prosperity."[1]

4

The Ice Age had a great influence on plant and animal life. The coming of the ice caused some species to become extinct. It forced others to move elsewhere.

Great forests slowly disappeared as the glaciers advanced. Trees that had once grown in Canada could survive only in the southern part of the United States. Remnants of the pre-Ice Age Canadian forest can still be visited in the Great Smokey Mountains.

5

4. This section describes the relation between the *laissez-faire* policy of the Harding and Coolidge administrations and the bad business practices that fed the speculation which resulted in the Crash of 1929. Reread the third paragraph and give two examples of bad practices that occurred when the government left business alone:

   1) _____

   2) _____

5. This section describes the relationship between the Ice Age movement of glaciers and the plants, animals, and land formations in their paths. Describe the relationship of each of the following to the movement of the glaciers:

   Great forests: _____

   _____

   Huge mammals: _____

   _____

   Human beings: _____

   _____

   The Great Lakes and the plains of the American Midwest, Europe and northern China: _____

   _____

There is a relationship between much that you see in nature today and events that occurred thousands of years ago.

The Ice Age encouraged the development of huge mammals suited to cool, dry climates. When the ice retreated, the horse, camel, bison, and elephant survived, but other huge mammals--the mammoth, mastodon, and saber-toothed tiger--disappeared. The human beings who hunted many of these large animals had to turn to other sources of food. Thus, the coming and going of the ice sheets tested the adaptability of human beings. They responded to the challenge and grew in knowledge and skills. For example, they developed agriculture soon after the end of the Ice Age.

The Ice Age glaciers also shaped many of the landscapes we see today. As the ice retreated, huge depressions that had been gouged out by the glaciers filled up with water. Thus the Great Lakes were born. Smaller depressions also filled with water, making Minnesota the "Land of 10,000 Lakes." The glaciers also deposited much of the soil in the American Midwest, the plains of Europe and northern China. In fact, many of the world's most productive farms are on soils deposited in the Ice Age.[2]

[1] Buggey, J., Denser, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 593-594.

[2] Denser, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), pp. 111-112.

Notations 1-5 These notations develop the reader's awareness of the relationship of cause and effect. Notice that the gloss gives directions about what to look for in the text in order to complete the activities and summarizes the relationship that is illustrated once the activities are completed. The readers for whom these items are written may not have mastered this skill, or may have rather incomplete knowledge of the content with which to integrate the particular new information in these texts.

The complete set of *rational numbers* includes:

1. the set of positive rational numbers;
2. zero;
3. the set of negative rational numbers.

In set language, it is the *union* of three sets, and we can write

{*the rational numbers*} =

{*the positive rationals*} ∪ {0} ∪ {*the negative rationals*}.

A basic property of a rational number, which distinguishes it from every non-rational number, is the fact that it can be expressed in the fractional form $\frac{r}{s}$ where r and s are integers, with $s \neq 0$. For example, some ways of writing the numbers 3, -2, 0 and 4 in fractional form are as follows:

$3 = \frac{12}{4}$; $-2 = \frac{-4}{2}$; $0 = \frac{0}{8}$; $4\frac{1}{5} = \frac{21}{4}$.

[redacted] Any number that can be expressed in the form $\frac{r}{s}$, where r is an integer and s is a nonzero integer, is a rational number.[1]

It has been pointed out that the mass of a body can be determined in two distinct ways. One method consists in weighing it at a standard location, the other in observing its motion when a known force is applied or when the body interacts with a standard mass. It may well be asked whether these two diverse kinds of experiments really measure the same thing. There seems to be no reason to assume that a single quantity could serve to represent both the property of gravitational attraction and that of inertia. Conceivably, an object may have a *gravitational mass* m_G and a different *inertial mass* m_I. . .

6. This section describes the relationship between the concepts of positive rational numbers, zero, and negative rational numbers. Fill in the blanks:

   Positive rational numbers, zero, and negative rational numbers are subsets of the set of _____.

   This is the relationship of a part to a whole.

7. This section describes rational numbers in terms of integers and zero. This relationship is described in the first sentence of the section. Examples are given in the second sentence. And a summary is provided next to the box.

   If r and s are integers and s is not zero, what is r/s?

   _____.

   6 is a rational number. Express it in terms of a ratio of an integer and another integer which is not zero:

   _____.

8. This section tells about the relationship between two concepts of mass--gravitational mass and inertial mass. Their relationship is explained by the principle of equivalence. Reread this section and complete the following:

   A body's gravitational mass and its inertial mass are each _____ to its weight, and they are _____to each other. Einstein said that this is so because _____

   _____.

   One of Einstein's goals was to give the simplest possible explanation of observations. Here he proposed that there is really only one way of thinking about mass, whereas before there were two. His theory of relativity had to explain how this could be so.

The connection between these two characteristics of mass was accepted merely as an experimental fact for two centuries. In 1914, Einstein reasoned that there must be a fundamental basis for this correspondence. He became convinced that *the effects produced by accelerated motion and by gravitational action are not distinguishable from each other.* This principle of equivalence became the starting point for the general theory of relativity.[2]

It pleased God that I was still spared, and very hearty and sound in health, but very impatient of being pent up within doors without air, as I have been for fourteen days or thereabouts, and I could not restrain myself, but I would go to carry a letter for my brother to the post-house. Then it was indeed that I observed a profound silence in the streets. When I came to the post-house, as I went to put in my letter, I saw a man stand in one corner of the yard and talking to another at a window, and a third had opened a door belonging to the office. In the middle of the yard lay a small leather purse with two keys hanging at it, with money in it, but nobody would meddle with it. I asked how long it had lain there, the man at the window said it had lain almost an hour, but that they had not meddled with it because they did not know but the person who dropped it might come back to look for it. I had no such need of money, nor was the sum so big that I had any inclination to meddle with it, or to get the money at the hazard it might be attended with; so I seemed to go away, when the man who had opened the door said he would take it up, but so that if the right owner came for it he should be sure to have it. So he went in and fetched a pail of water, and set it down hard by the purse, then went again and fetched some gunpowder, and cast a good deal of powder upon the purse, and then made a train from that which he had thrown loose upon the purse. The train reached about two yards. After this he goes in a third time and fetches out a pair of tongs red hot, and which he had prepared, I suppose, on purpose, and first setting fire to the train of powder, that sing-

9

9. From this account the reader can learn something about the relationship among fear, greed, and ingenuity. The action took place during the outbreak of the Great Plague of London.

Why was the man afraid to handle the purse with his hands?

_____

How did he avoid doing so?

_____

He used ingenuity to satisfy his _____ despite his fear.

[1]Denholm, R., & Dolciani, M. Elementary Algebra, Part 2. Boston: Houghton Mifflin Co. (1973), p. 392.

[2]Freeman, I. Physics, Principles and Insights. N.Y.: McGraw Hill (1973), pp. 186 and 188.

ed the purse, and also smoked the air sufficiently. But he was not content with that, but he then takes up the purse with the tongs, holding it so long till the tongs burnt through the purse, and then he shook the money out into the pail of water, so he carried it in. The money, as I remember, was about thirteen shillings and some smooth groats and brass farthings . . .[1]

[1] McDonnell, H., Nakadate, N., Pfordresher, J., & Shoemate, T. England in Literature. Glenview, Ill.: Scott, Foresman and Co. (1979), pp. 294-295.

Notations 6-8	These notations describe definitional relationships, in which a whole is defined by listing its parts or a concept is defined by the relationship among its parts.
Notation 9	This notation provides the readers a list of the important concepts and leads them to a statement of their relationship by questioning.

F. Sequence

1. Demonstration gloss

Different degrees of sleep. When you lie down to sleep, it usually takes about twenty minutes to lose contact with the things around you. For about the next forty minutes, your sleep becomes deeper because body processes are slowing down and the conscious mind is stopping its activity. In other words, about an hour elapses before you reach a condition of deep sleep. You continue sleeping deeply for another hour or two. During the next two or three hours, your sleep becomes lighter. You gradually wake up during the last two or three hours. 1

Thus, we can divide an eight-hour period of sleep into four parts: (1) going to sleep, (2) deep sleep, (3) light sleep, and (4) waking up. This is the typical sleep pattern for an adolescent and an adult.[1]

In a flash distillation plan, water is changed quickly into steam without boiling the water. This is done by letting heated water flow into a chamber in which the air pressure is low. The steam rises in the chamber, cools, and changes back into water. This water, which is fresh water, is collected.[2] 2

The Sinking of the *Lusitania*

According to the "rules of war" neutral ships were not to be attacked by warring nations. Britain began to paint neutral markings on her ships and to fly neutral flags--especially the American flag. 3

1. This section describes a sequence that occurs during sleep. Notice that the sequence is summarized by the 4 parts listed in the second paragraph.

2. The process of flash distillation which is described here can be thought of as a sequence of events.

   1) Water is heated.
   2) It flows into a low pressure chamber.
   3) Some of it becomes steam.
   4) The steam rises.
   5) The steam cools and changes back into water.
   6) The water is collected.

3. You may understand this section better if you are aware of the sequence of political events it describes. Reread the section with this sequence in mind:

   1) By 1915 - English ships used the American flag - and flags of other neutral countries - for protection, taking advantage of the "rules of war."
   2) May 7, 1915 - The English ship, the *Lusitania*, carrying some American passengers and flying the American flag, was sunk by a German submarine.
   3) After May 7, 1915, the United States almost entered the war, but President Wilson prevented this by getting a German apology and a stop in German attacks on passenger ships.
   4) 1916 - Wilson was re-elected with the slogan, "He kept us out of war!"
   5) By 1917 several American ships were sunk by German submarines.
   6) 1917 - In the Zimmerman Note, Germany tried to convince Mexico to join the war with Germany if the U.S. joined against Germany.

On May 7, 1915, the British ship, the *Lusitania*, was sunk with nearly 1300 casualties. Although they had been warned of the dangers, 128 American tourists were among those who died. The *Lusitania* flew the American flag, hoping to confuse the Germans. Today, we know that it was carrying ammunition, in violation of agreements about passenger ships. The sinking of the *Lusitania* almost caused the United States to enter the war in 1915. But President Wilson was successful in getting a German apology and a temporary end to submarine attacks on passenger liners. . . .

In the middle of the *Lusitania* crises, the 1916 presidential election was held. The Republicans nominated Charles Evans Hughes, former Progressive governor of New York and popular Supreme Court justice. The Democrats nominated Wilson again and appealed to the public with the slogan "He kept us out of war!" On election night Wilson went to bed thinking Hughes had won. But when the votes were all counted, Wilson was the winner.

The Zimmerman Note

Wilson was finally forced into the war when the British released a note sent by the German foreign minister, Zimmerman, to the Mexican government. The note proposed that Mexico join an alliance with Germany if the United States went to war against the Central powers. Mexico's reward would be recovery of Texas, Arizona, and New Mexico. And, on April 2, 1917, Wilson asked Congress for a declaration of war. By this time, several American ships had been sunk by German submarines. After several days of debate, Congress declared war on Germany on April 6, 1917.[3]

7) April 2, 1917 - Wilson asked for a Declaration of War.
8) April 6, 1917 - Congress passed the declaration.

[1] Otto, J., Julian, C., & Tether, J. Modern Health. N.Y.: Holt, Rinehart, and Winston (1976), p. 304.

[2] Magnoli, N., Douglass, L., & Ellis, D. Exploring Earth and Space. River Forest, Ill.: Laidlow Bros. (1978), p. 459.

[3] Baggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 573-574.

Notations 1-3

#1 - This notation directs the reader to a sequence of events.

#2 - This notation summarizes the text with a sequence of events.

#3 - This notation provides a sequence as an advance organizer for the re-reading of the text.

2. Developmental gloss

It pleased God that I was still spared, and very hearty and sound in health, but very impatient of being pent up within doors without air, as I have been for fourteen days or thereabouts, and I could not restrain myself, but I would go to carry a letter for my brother to the post-house. Then it was indeed that I observed a profound silence in the streets. When I came to the post-house, as I went to put in my letter, I saw a man stand in one corner of the yard and talking to another at a window, and a third had opened a door belonging to the office. In the middle of the yard lay a small leather purse with two keys hanging at it, with money in it, but nobody would meddle with it. I asked how long it had lain there, the man at the window said it had lain almost an hour, but that they had not meddled with it because they did not know but the person who dropped it might come back to look for it. I had no such need of money, nor was the sum so big that I had any inclination to meddle with it, or to get the money at the hazard it might be attended with; so I seemed to go away, when the man who had opened the door said he would take it up, but so that if the right owner came for it he should be sure to have it. So he went in and fetch[illegible] pail of water, and set it down hard by the purse, then went again and fetched some gunpowder, and cast a good deal of powder upon the purse, and then made a train from that which he had thrown loose upon the purse. The train reached about two yards. After this he goes in a third time and fetches out a pair of tongs red hot, and which he had prepared, I suppose, on purpose, and first setting fire to the train of powder, that singed the purse, and also smoked the air sufficiently. But he was not content with that, but he then takes up the purse with the tongs, holding it so long till the tongs burnt through the purse, and then he shook the money out into the pail of water, so he carried it in. The money, as I remember, was about thirteen shillings and some smooth groats and brass farthings . . . .[1]

1

1. The peculiar activities described here took place during the outbreak of the Great Plague of London. List the sequence of actions that the writer observed at the post-house:

_____

_____

_____

_____

_____

To build a space colony, some scientists think that the raw materials can be mined on the moon. Lower gravity on the moon would make such work easier than it is on the earth. Soil from the moon could be sent from there to an orbiting space station. Oxygen, iron, aluminum, and other materials could be extracted from the lunar soil. Finally, these materials could be sent on to a place in space suitable for the space colony.[2] 2

Ancient Chinese astronomers had worked out a yearly calendar by 1400 B.C. They improved their calendar so that by 1200 B.C. it included exactly 365 1/4 days. By 350 B.C., the astronomer Shih Shen had prepared a catalog listing more than 800 stars . . . These forces are further explained in Newton's laws of gravitation [GRAV-uh-TAY-shuhn]. The laws of motion for which Newton is also famous will be covered in Chapter 25.[3] 3

[1]McDonnell, M., Nakadate, N., Pfordresher, J., & Shoemate, T. England in Literature. Glenview, Ill.: Scott, Foresman, and Co. (1979), pp. 294-295.

[2]Magnoli, M., Douglass, L., & Kilts, D. Exploring Earth and Space. River Forest, Ill.: Laidlaw Bros. (1978), p. 530.

[3]Ibid., pp. 488 and 491.

2. This section describes what is needed for the building of a space colony. Thinking of a sequence of events will help the reader understand what is needed.

   Complete this sequence:

   1) Raw materials are mined from the moon.
   2) Soil from the moon is sent to an orbiting space station.
   3) _____
   4) _____
   5) Then the colony can be built.

3. Many accomplishments contributed to the development of the science of astronomy. Reread this section and write a sentence describing an accomplishment for each step in the following sequence:

   1) The ancient Chinese: _____
   2) Babylonians: _____
   3) Egyptians: _____
   4) Early Greeks: _____
   5) Ancient astrologers: _____
   6) Copernicus (1473-1543): _____
   7) Johannes Kepler (1571-1630): _____
   8) Isaac Newton (1642-1727): _____

You may understand astronomy better if you see that explanations were improved as later groups or persons in this sequence benefited from the work of those who went before them.

Notations 1-3 . These notations of developmental gloss illustrate the same uses of sequence as those illustrated in the above demonstration gloss. With developmental gloss, however, the reader is involved in written activities.

II. Strategies

A. Purpose

1. Demonstration

Americans living in 1876 often called their time the "Age of Invention" and the "Age of Improvement." An amazing number of new inventions were developed in the last half of the nineteenth century. Many people believed that these inventions were helping to create a better world—one in which people were able "to satisfy their wants with less effort and cost than before."

Writers and public speakers of the time often talked about the "wonders of American invention." But inventions come about due to the efforts of a great number of people in many countries. American inventions of the late 1800s often were based on the scientific discoveries of Europeans. American inventors, however, used these discoveries to make practical things for everyday use. This was the special genius of American invention.

"A Fit Occupant for this Weird Scene"

In the late 1800s, many Americans had a popular image of inventors. They thought inventors were mechanical wizards who could turn the forces of nature into wonderful devices for people to use. Americans thought of them as working late into the night searching for new ways to make life better for people.

Let's visit the person who most nearly fit this image. Our guide will be a reporter who visited the inventor at his shop in the summer of 1879.

It is black midnight, and the stillness and awe of that lonely hour have settled upon the pleasant hills and pretty homes of the remote New Jersey village. Only one or two windows gleam faintly, as though through dusty panes. The traveler directing his steps by their light, enters a door, passes to a flight of

1

1. An author always has a purpose for writing. A reader should always have a purpose for reading. Sometimes the reader's purpose and the author's purpose are the same. The reader's purpose and the author's purpose for]1 might be very similar.

Reader's Purpose: 1) to understand American feeling toward inventions and inventors in the late 1800s
2) to get a "picture" of the inventor at work in his surroundings

Reader's Questions Related to Purpose: 1) How did Americans feel about inventions and inventors?
2) What words could be used to describe the inventor in his surroundings?

Reader's Rate Related to Purpose: Read]1 quickly to get a feeling and picture of the setting.

stairs guarded by the shadows of strange objects, and feels his way upward.

A single flaring gas flame flickered at one end of a long room, revealing hundreds of bottles in many different sizes, carved and turned pieces of wood, strange shapes of brass, and a wilderness of wires, some straight, others coiled, the ends pinched under thumbscrews, or hidden in dirty jars, or hanging free from invisible supports.

[Let's stop for a minute. Can you picture the workshop? What mood does the reading create? What words help set the mood?]

At an open red brick chimney, outlined from the darkness by the light of fiercely smoking lamps, stands a roughly clothed gray-haired man. He is intent upon a complex arrangement of brass and iron and copper wire, assisted by magnets, jars of acid, and small bottles labeled with chemical formulas. His eager face is lit by the yellow glare from the flickering lamps, as he glances into a heavy old book lying there, while his broad shoulders keep out the gloom that lurks in all corners and hides among all the machinery. He is a fit occupant for this weird scene; a midnight workman who with his magnetic wand changes everyday knowledge into new applications and original uses. He is THOS. A. EDISON at work.[1]

[1] Baggett, J., Danner, C., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 413-415.

Notation 1 - The demonstration gloss for the strategy, establishing purpose, emphasizes that just as authors have a purpose for writing, readers should also have a purpose for reading. The strategy of establishing a purpose involves a three-step process:

(1) Stating the purpose — In this example, demonstration gloss provides objectives/reasons for reading since they are not specifically given in the text.

(2) Generating questions — Two questions that directly relate to the purpose are given in the demonstration gloss to help the readers see the relationships between questions and purpose.

(3) Determining rate — The rate for reading is directly related to the purpose. In this example, the reader is to read for an overall feeling and picture rather than for specific details; therefore, the demonstration gloss tells the reader to read quickly.

The "Wizard of Menlo Park"

Thomas A. Edison was probably America's most famous inventor. He fits the popular image well because it was, in large part, created by his own life. As a child, he wore out his parents and teachers with his constant questions. He was curious about everything. On one occasion, as the story goes, he sat on some eggs to see if he could make them hatch. On another, he set fire to his father's barn "to see what would happen."

This type of curiosity led one of his teachers to call him "addled" and so his mother, a former schoolteacher, decided to teach him at home. He read all the science books he could get his hands on. Soon he was conducting experiments in a laboratory he set up in one corner of a baggage car. By the time he was 16, he became a telegraph operator for the railroad. Later, he worked for a company that reported the prices of stocks on the New York Stock Exchange. He developed a machine to help do this work and then sold it to the company for a lot of money. At the age of 23, he was able to quit working and devote himself to inventing.

From his small laboratory in Newark, New Jersey, Edison began turning out inventions at an amazing rate. Soon he was applying for a new patent on an average of every six weeks. A patent is a government grant which gives a person or a company the exclusive right to make, use, or sell a new invention for a number of years.

The first United States Congress set up the patent system to encourage inventions by Americans. If the invention was registered with the government and granted a patent, or certificate, the owners could prevent others from making, selling, or using it in the United States for a period of seventeen years.

Americans based this system on English practice. Samuel Hopkins received the first United States patent in 1790. It was for a machine to make potash, a material used to make soap, fertilizer, and glass. Since then millions of inventions have been patented by all kinds of people from children to 100-year-old grandmothers.[1]

2

3

2. and 3. Follow 3 steps in Establishing a Purpose:

1. State the purpose--Why should I read this? What important information should I learn from reading this?

2. Ask questions related to the purpose.

3. Determine the rate at which you should read. Reading speed depends on the purpose.

Establishing a Purpose for the section "The 'Wizard of Menlo Park'"

1. State the purpose: a) To gain some background knowledge of Thomas Edison: his life, character, and his inventions
   b) To be able to explain the U.S. patent system and its history

2. Questions: a) Name one characteristic of the person Thomas Edison.
   b) What are some of his inventions?
   c) What is a patent?
   d) Where did the Americans get the idea for the patent system?

3. Rate: Read]2 about Thomas Edison's life quickly. Read the information in]3 which explains the U.S. patent system slowly to learn more details.

[1] Buggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), p. 415.

Notations 2 and 3 - In this example, demonstration gloss states the three steps in establishing a purpose and leads the reader through an example of each. Notice that the gloss provides two rates for reading that relate directly to the two purposes that were stated.

2. Developmental

2/THE SOLAR SYSTEM

The solar system includes the sun and all the planets, moons, and other objects that travel around it. Until a few years ago, all these objects except our own earth were veiled in mystery. Now humans have visited the moon, probes have landed on Mars and Venus, and spacecraft cameras have sent back pictures of Mercury, Jupiter, and the moons of Mars and Jupiter. Knowledge about the solar system has thus increased tremendously.[1] 1

CHECKUP ✓ ✓ ✓ ✓ ✓ ✓

1. What objects are part of the solar system? Give a brief description of each type of object.
2. List the nine planets in order of their distance from the sun. Indicate which ones are mainly rock and iron and which ones are mainly gaseous. Which planet is almost a complete mystery?
3. In what ways is the earth different from the other planets?[2] 2

[1] Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), p. 69.

[2] Idem, p. 73.

1. The title and the introduction to this section found in]1 tell the reader that this section is about the solar system. This introduction should help the reader establish a purpose for reading.

   State a purpose for reading:

2. (After stating a purpose, the reader should ask 2 or 3 questions that might be answered if the text is read for that purpose. The questions at the end of the section in]2 might be helpful.)

   Write the purpose questions:

   1.
   2.
   3.

(To accomplish the purpose for reading and to answer the questions, what would be a good reading rate?)

Rate: (Circle one)

(1)	(2)	(3)
Skim quickly for general idea	Moderately fast for main ideas and some details	Slowly for specific details, definitions.

Notations 1 and 2 - The purpose of this developmental gloss notation is to help the reader develop the strategy of establishing a purpose by outlining the 3-step process: stating purpose, generating related questions, and determining rate. In this example, to establish a purpose (i.e., to complete the 3 steps), the readers' attention is directed to (1) the title and introductory paragraph, (2) the "Check-up" questions at the end of this section of text, and (3) the 3 rates for reading.

B. Prior Knowledge

1. Demonstration

The Life of the Serf

Life in the Middle Ages was very difficult and dangerous. Nowhere can this be better seen than by studying the condition of the peasants living on the land. Basically, there were two types of peasants. The first were the free tenant farmers who paid rent to the lord for working the land. The second--and by far the largest group--were the serfs who were bound to the land. Not permitted to move from one place to another, these serfs and their descendants had to remain on the same manor all their lives. Although they were not slaves, they were not free either. Their only purpose was to devote their entire life to supporting their lord.

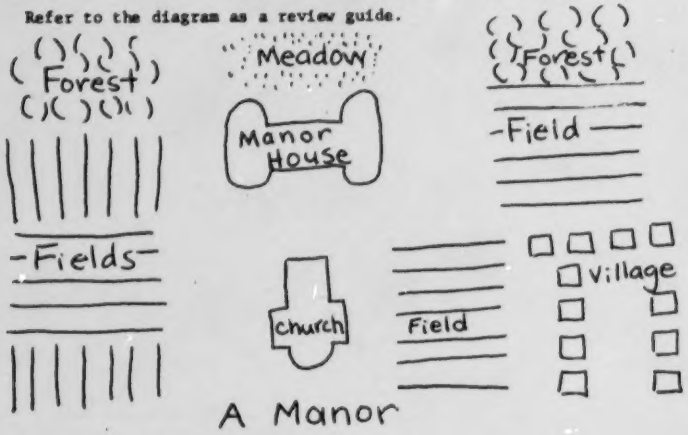
Besides being the basic source for farm labor, the serfs worked the grain mills, ovens, and the wine presses. Cloth was made and leather was tanned. There were also blacksmiths and other necessary craftsmen living on the manor. Everything that was needed was either grown or manufactured on the manor.

The serf worked long and hard, usually from dawn to sunset. Being at the complete mercy of the lord, he had to perform any tasks the lord might ask of him.

The serf also owed his lord days of labor to work on roads, the castle, or any other jobs the lord required. When the lord hunted he was free to trample the fields of his peasants.

The serf had to pay heavy taxes. Each time he used the lord's oven he paid a fee. Since he had no money, the serf paid his fees in produce. He lived in a crude hut. Always close to starvation, he ate soup and coarse bread, and only on rare occasions did he eat meat. If his crops failed to grow or were destroyed by the weather, he starved.[1]

1. In order to understand "The Life of a Serf," you need to recall the description of life on a manor. Reread "Manorialism" (p. 261) to review the environment in which a serf lived. Refer to the diagram as a review guide.



1, "The Life of the Serf," tells about two types of peasants who lived in the feudal society. The life of a serf, one type of peasant, is described in detail.

[1]Capelluti, P., & Grossman, R. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970), pp. 264-265.

Notation 1 - Prior knowledge, in this example, refers to recalling general information rather than specific details that will help the reader understand what is to be read. Demonstration gloss directs the reader to review a previous section and provides a guide (diagram) for this review.

Multi-cellular Plants as Organisms

There is a difference between the body structure of animals and plants. An animal has cells that make up tissues. The tissues make up organs. The organs make up organ systems such as the nervous system and the digestive system which you have just studied.]2

The organization is not quite the same in plants. There are cells, of course, and in higher plants there are tissues. We can even call the roots, the stems, and the leaves of a tree organs because these structures are made up of different tissues that work together to do special jobs for the tree. However, there are no organ systems comparable to those of animals.[1]]3

[1] Brandwein, P., Brovey, D., Greenston, A., & Yasso, W. Life, A Biological Science. N.Y.: Harcourt, Brace, Jovanovich (1975), p. 122.

2. and 3. To understand the title of this unit, the reader needs to know the meanings of multicellular and organisms. "Multi" means "many." In an earlier unit the word cell was defined as the basic unit of a living thing. Multicellular is a word describing a living thing that is made of many cells.

"Organism" was defined earlier in the text. The information learned earlier on pages 89 and 90 defines organism as an organization to carry on the function of living things.

The title, therefore, explains that this unit is about plants which are living things, or organisms, made of many cells.

The first sentence in]2 tells the reader that the body structure of animals and plants will be compared in]2 and]3.

The reader needs to use the knowledge learned about animals in the previous chapters to make this comparison.]2 gives a brief summary of this "old knowledge." Then the information in]3 compares plant organization to animal organization. The chart shows this comparison:

Animals	Plants
1. made of cells	1. made of cells
2. cells make up tissues	2. some higher plants have tissues
3. tissues make up organs	3. a tree's roots, stems and leaves are like organs
4. organs make up organ systems	4. no organ systems

Notations 2 and 3 – In this example, prior knowledge refers to information given previously in this text. Demonstration gloss (1) provides the specific information given in previous units in the text which is needed to understand the material to be read and (2) helps the reader relate and compare this prior knowledge with the new information in this passage.

2. Developmental

Egyptian Farming

Irrigation was quite simple in Egypt. Since the flooding of the Nile was predictable, farmers could tell accurately when the flooding was about to begin. The building of canals and catch basins was also quite easy. How did this compare with the situation in Sumer? What effect did Sumerian farming methods have on city growth? Can you explain why no large cities developed in early Egypt?[1]] 1

The nervous system. We can compare your nervous system with a telephone network. Just as telephone wires carry incoming calls to the central exchange, threadlike nerves carry impulses from the sense organs to your central exchange, the brain and spinal cord.[2]] 2

[1] Capelluti, F., & Grossman, R. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970), p. 89.

[2] Otto, J., Julian, C., & Tether, J. Modern Health. N.Y.: Holt, Rinehart, and Winston (1976), p. 211.

1. The information in]1 explains that irrigation was simple in Egypt for two reasons: 1) the flooding of the Nile, and 2) the ease of building canals and catch basins. The authors want the reader to compare the Egyptian irrigation system with that used by the Sumerians. To make this comparison, the reader must relate this information on Egyptian farming to the information read in a previous section about Sumerian farming.

Reread pages 63 and 64 and answer the following:

1) Was Sumer located near rivers? _____
2) What caused the soil near the rivers to be rich and fertile? _____
3) What did the Sumerians do to increase the amount of rich fertile soil? _____

The author provides two questions in]1 to help the reader compare Egypt and Sumer. Think about these two questions:

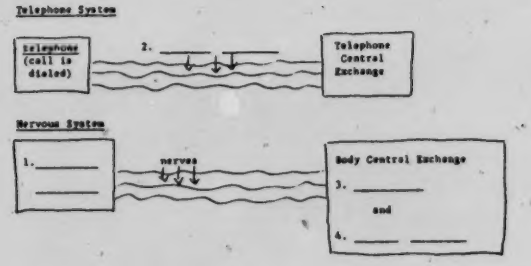
1) What effect did Sumerian farming methods have on city growth?
2) Can you explain why no large cities developed in early Egypt?

After answering the questions referring to previous knowledge about Sumeria and thinking about the questions the author asks in]1, compare Egyptian and Sumerian farming.

2. The author suggests in]2 that one way to understand the nervous system is to compare it to something familiar. What is the familiar system suggested by the author? _____

_____

Fill in the blanks below to make the comparison given in]2.



Notation 1 - In this example, the text directs the reader to relate prior knowledge gained from reading a previous section of the text to the information in the bracket. Developmental gloss assists the reader by providing questions that focus on information needed to make comparisons.

Notation 2 - In this example, analogy is used to relate something familiar to the reader (i.e., prior knowledge) to new, more complex information presented in the text. Developmental gloss requires the reader to respond to indicate understanding of the analogy given.

C. Organization

1. Demonstration

Actual Union Operations

Let us now turn to the operations of a union within these restraints which have been imposed upon it. How does unionism work? What do unions actually do?

Collective Bargaining

One of the main functions of unions is to engage in collective bargaining with employers. In individual bargaining, the employer deals with each employee separately in arriving at the terms of employment. In collective bargaining, however, the employer deals with the workers as a group. The workers, joined together in a union, delegate to union officials the authority to bargain for them with their employer.

Suppose that a union is trying to organize the workers in a particular factory. The union petitions the National Labor Relations Board for an election to determine whether or not the workers want the union as their representative.

Upon the approval of the NLRB, the workers are given secret ballots. If enough pro-union votes are received (a simple majority in most states), the NLRB will certify the new union as the sole collective bargaining agent for the factory.

A meeting is scheduled between union and management representatives to discuss a new contract. The workers will be represented by a committee of elected union officials and perhaps a union expert on collective bargaining.

The union representatives will have extensive research reports and other data which they will use to back up the union's demands. The union's economic research staff, paid by union dues, provides considerably more data than an individual worker could obtain by himself.

1

1. The passage titled "Actual Union Operations" has several subheadings. To help you organize the section, group the subheadings in the following order:

A. Collective Bargaining	This section tells about the main function of labor unions. After reading, you should be able to describe collective bargaining, who is involved, and what issues are considered.
B. 1. Mediation 2. Voluntary Arbitration 3. Fact Finding	The 3 subheads identify other methods to use when collective barbaining fails. Compare the 3 methods and know what is different about each one. Refer to figure 20-3 (p. 345).
C. 1. Presidential Influence 2. Injunction & Seizure	These 2 sections discuss powers imposed by the President or U.S. Government. Form questions: Why Presidential influence? and What are injunctions and seizures? to guide your organizing information.
D. Compulsory Arbitration	This section reports on a method that is rarely used. Can you find a cause and effect relationship between the term "compulsory" and the fact that it is rarely used?

On the management side of the bargaining table will be a management official in charge of labor relations. He will probably have with him the head of the company's economic research staff and perhaps the company's attorney who specializes in labor law. Each side is prepared with economic data supporting its own point of view. Bargaining in earnest begins.

One major issue which will be discussed is hourly wage rates. Besides wages, though, workers receive other types of payments for their services. These consist of the many *fringe benefits*, such as vacations with pay, sick leave, retirement pensions, company-sponsored recreation programs, and educational allowances. These fringe benefits may also be discussed at the bargaining table.

Collective bargaining is a serious and complex business. It involves much give and take on the part of both management and the union. Every possible labor issue is resolved and put into the contract. And usually some provision for resolving unforeseen issues --called a grievance procedure--is also incorporated into the contract.

Most union contracts are the result of serious bargaining between labor and management--usually with patient cooperation and utmost respect for the rights of each party. Although labor and management do not always agree on all issues, they generally strive to live together harmoniously.

Sometimes, of course, breakdowns occur, and a contract cannot be negotiated. A strike may result, although strikes are costly, and labor generally uses them only as a last resort. If the collective bargaining process breaks down, other methods of resolving differences are frequently used.

Mediation

One method of resolving differences is through "mediation." *Mediation* involves bringing a third person or persons into the controversy to help settle the issues in dispute. Neither side is bound to accept the decision of the mediator. Thus, to function effectively, the mediator must have the confidence and trust of both management and labor. In this way, he may serve as a counselor and learn the concessions that each side is willing to make.

The mediator should be neutral--he should not try to help one side at the expense of the other. Rather, his prime objective should be to find a solution acceptable to both parties. Mediation is simply an aid to collective bargaining. The parties to the dispute must still make their own settlements and accept full responsibility for any agreement which may be reached.

Voluntary Arbitration

When labor and management agree to submit their differences to the decision of a third party, and to accept the decision as final and binding, the procedure is known as *voluntary arbitration*. It is voluntary in the sense that both parties agree ahead of time to accept the decision of the arbitrators as final and binding.

Fact-finding

When collective bargaining fails, labor and management may agree to the appointment of a board to investigate a dispute and recommend possible settlements. Neither party must accept the board's recommendations as final. Once an investigating board's findings and recommendations have been made public, however, popular sentiment will often force the parties to accept the recommendations of the board and reach an agreement.

Presidential Influence

Another factor which can lead to ultimate settlement of

labor-management disputes is the powers of persuasion possessed by the President of the United States. The President may make public appeals to the disputing parties to reach an early agreement, although, in most cases, he does so only when the dispute involves an industry which affects the national interest. Steel, airlines, and railroads, for example, would be classified as such industries.

There are two major reasons why the President has considerable influence in the settlement of labor disputes. First, the appeal presumably has the support of the general public which elected the President to his high office. If either the union or management completely disregards the President's views, it is likely to incur widespread public disfavor.

Second, there is always the possibility that should the President's appeal go unheeded, it may be enacted into law. And both labor and management prefer free collective bargaining to a government-imposed settlement.

Injunction and Seizure

In some cases, labor and management may become hopelessly deadlocked. A union may then call a *strike*--a refusal to work until management accepts the workers' demands. Or, management may decide to call a *lockout*--a refusal to admit employees for work until they accept management's demands. When strikes or lockouts threaten vital industries, government has two possible courses of action--"injunction" or "seizure."

An *injunction* is a court order to refrain from acting. If issued against a union, it directs the union not to call a strike. If issued against a company, it directs the company not to lock its employees out. The purpose of an injunction is to maintain the current situation for some temporary time period in which further efforts to reach an agreement are made.

A seizure involves the actual substitution of government for management. The government takes over and directs the operations of the firm. Such measures encourage the employer to seek an early settlement so that the property can be restored to private operation. In addition, while government is functioning as management, it can negotiate with the union concerning new terms of employment.

Injunctions and seizures are last-resort attempts to resolve labor differences. Both have been used, though, when the nation's welfare has been threatened by a possible strike or lockout in some vital industry.

In 1946, for example, the bituminous coal industry was seized and operated by the government. In this particular case, government officials negotiated a settlement with the miners. In 1963, injunctions were issued in the International Longshoremen's Association's dispute with the shipping companies. The fact that injunctions and seizures are used infrequently and with caution indicates the severity of the measures.

Compulsory Arbitration

Under *compulsory arbitration,* an unsettled dispute is submitted to an arbitrator for final and binding decision. Compulsory arbitration no longer exists in this country, although there is continuing talk of asking Congress to legislate for its use in certain vital industries.

Supporters of compulsory arbitration argue that the threat of compulsory compliance with the arbitrator's decision would encourage labor and management to reach an agreement themselves—before arbitration. Opponents argue that the existence of compulsory arbitration actually tends to discourage collective bargaining. Both labor and management know that the arbitrator is the only party that can make the final decision. Thus, both sides tend to make numerous and unreasonable demands, which, in turn, hinders the bargaining process.[1]

[1] Brown, J., & Wolf, H. Economics: Principles and Practices. Columbus, Ohio: Charles E. Merrill Publishing Co. (1968), pp. 343-347.

Notation 1 - Demonstration gloss leads the reader to use the external organization of the text (i.e., title, subheadings) as a strategy for better understanding. In this example, the subheads are grouped to help the reader relate the information in each.

THE LANDS THEY LEFT

The accounts you have just read gave some clues as to why the writers migrated to the New World. A look at the world they left behind may help you better understand their view of America.

Conditions in Europe

By 1600, the population in England was growing faster than the supply of food and other goods. Trade also increased, and with it the demand for raw materials. Wool was in especially great demand. Landowners who had long rented out land now discovered they could make a larger profit by using their land to graze sheep. Former tenant farmers flocked to the cities to find work. This sharp increase in laborers created much unemployment.

Economic conditions were even worse in Scotland and Ireland. The people in these countries were at the mercy of English laws. These laws favored English agriculture and textiles over the products produced elsewhere. There were also many people in these countries who did not agree with the Church of England and resented having to pay taxes to support it.

Wars had also had harmful effects on the Europeans. Particularly in the German states, poverty and destruction were widespread. The people were anxious to find new opportunities for their lives.

Other Reasons for Migration

There were several other reasons why people left their homes to settle in America. Many people had a love for adventure and were restless with what they were doing. America seemed exciting.

Some people had been involved in crimes. America promised them a new start. For others, work in the colonies for a fixed number of years was substituted for the death penalty in major crimes.[1]

2. The organizational scheme of simple listing is used in this section, "The Lands They Left." The reasons why people left Europe to come to America are listed and explained under the subheads "Conditions in Europe" and "Other Reasons for Migration." After reading these two sections, the reader might come up with the following list of reasons:

    1. Not enough food and other goods for the growing population of England
    2. Unemployment in England
    3. People in Scotland and Ireland did not agree with the Church of England and resented paying taxes to support it.
    4. Poverty and destruction caused by war left people anxious to find a new life.
    5. Some people wanted adventure.
    6. New start for those involved in crimes

[1] Buggey, J., Danzer, G., Mitsakos, C., & Risinger, C. America! America! Glenview, Ill.: Scott, Foresman and Co. (1977), pp. 104-105.

Notation 2 - Demonstration gloss calls the readers' attention to the use of simple listing as a scheme for organizing what is read. A list is provided to assist the reader in organizing the information for better understanding.

Effects of the Ice Age

The Ice Age had a great influence on plant and animal life. The coming of the ice caused some species to become extinct. It forced others to move elsewhere.

Great forests slowly disappeared as the glaciers advanced. Trees that had once grown in Canada could survive only in the southern part of the United States. Remnants of this pre-Ice Age Canadian forest can still be visited in the Great Smoky Mountains. 3

The Ice Age encouraged the development of huge mammals suited to cool, dry climates. When the ice retreated, the horse, camel, bison, and elephant survived, but other huge mammals--the mammoth, mastodon, and saber-toothed tiger--disappeared. The human beings who hunted many of these large animals had to turn to other sources of food. Thus, the coming and going of the ice sheets tested the adaptability of human beings. They responded to the challenge and grew in knowledge and skills. For example, they developed agriculture soon after the end of the Ice Age. 4

The Ice Age glaciers also shaped many of the landscapes we see today. As the ice retreated, huge depressions that had been gouged out by the glaciers filled up with water. Thus the Great Lakes were born. Smaller depressions also filled in with water, making Minnesota the "Land of 10,000 Lakes." The glaciers also deposited much of the soil in the American Midwest, the plains of Europe, and northern China. In fact, many of the world's most productive farms are on soils deposited in the Ice Age.[1] 5

[1] Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), pp. 111-112.

3. 4. and 5. In "Effects of the Ice Age," an organizational scheme of cause and effect is used. In the preceding sections, the coming of the Ice Age with its huge glaciers was described. Read]1,]2, and]3 to find effects in plants, animals and land caused by the glaciers. Refer to the diagram to help organize the cause/effect relationship.

Cause		Effect	
Ice Age - glaciers	]1	plants	forests disappeared
	]2	animals	extinct or move elsewhere; development of huge mammals
		human beings	adapted to changing conditions
	]3	land	shaped landscapes
			retreating glaciers left 1. depressions filled with water
			2. rich soil deposits

Notations 3, 4 and 5 - Demonstration gloss leads the reader to see the use of the cause-effect organizational scheme in this passage.

2. Developmental

Defining the Word *Race*

What is your race? It seems as if this would be an easy question, something like "What state do you live in?" But it is not. We know that there are fifty states, each with its own name and specific boundaries. Races, however, are not like that. People disagree strongly on how many races there are, what they should be named, and what their characteristics are, or whether race is a useful concept at all. 1

What is a race anyway? Sometimes we use the word *race* to refer to the largest possible group of people--the human race. It is more commonly used, however, to refer to a group of people who are similar to each other because they have certain physical characteristics that are handed down from one generation to another by heredity. 2

Race in this sense, refers to certain physical traits which we receive from our parents that set us apart from other groups of people. The most easily recognized features, such as the color of our skin, the texture of our hair, the shape of our eyes, or mouth, or nose, are usually thought to indicate racial groupings. However, scientists have also found racial differences in blood type, fingerprints, the shape and number of our teeth, and the structure of certain bones. Even then, the answer to the question, "What is your race?" might be difficult. 3

A persons' race is never determined by a single physical characteristic, such as cheekbone shape or blood type. It is the general pattern of all our physical characteristics that suggests that we come from one or more groups of ancestors. Finally, because human history has been so complicated, no matter how many different ways we classify human beings into different racial groups, there will always be many individuals who cannot be easily identified with a particular race.[1]

[1]Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), p. 128.

1. 2. and 3. The organizational scheme of the section, "Defining the Word Race" is called definition because the information is organized for the primary purpose of defining race. The information in]1 points out that race is very hard to define because it is used in different ways.

Write the definition of race found in]2:

_____

_____

Part of the definition of race includes lists of physical features considered in determining a person's race. Name some of these physical features given in]3.

Farming Is Improved

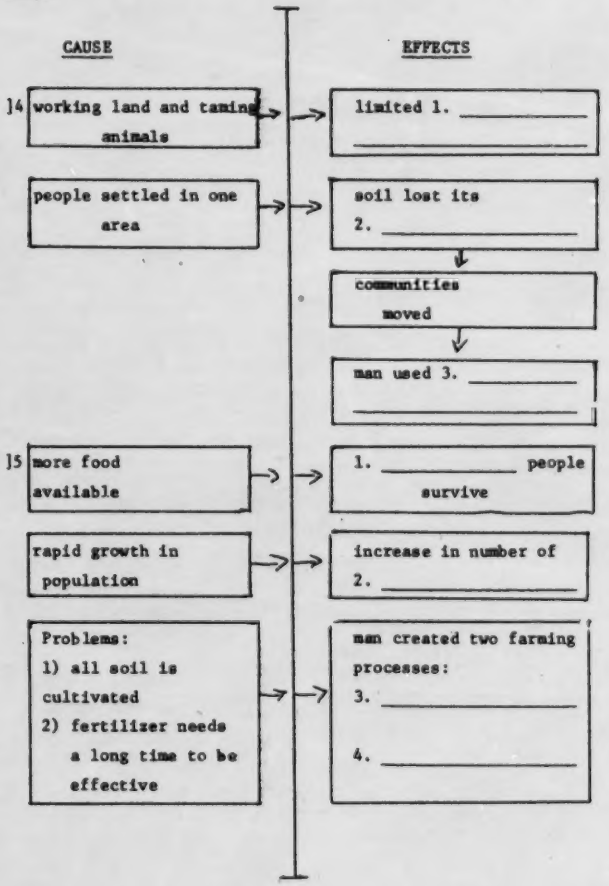
The development of farming and the taming of animals greatly limited the movement of Neolithic man. As life centered on working the land, groups tended to settle in one area. At first, whenever the soil lost its richness, communities would move to other, more fruitful lands. Later, man discovered that by scattering fertilizers--vegetables, wood ashes, and animal wastes--he could make the same soil fertile again. Neolithic man gradually settled down into village communities and a common life of farming. 4

Because more food was available, more people were able to survive. A rapid growth in population resulted in an increase in the number of villages. Gradually, as this happened, all the soil in one area came under cultivation. However, primitive types of fertilizers needed a long time to be effective. Two ideas about farming solved the problem. Man created the following process and the animal-drawn plow to make certain his fields remained productive.[2] 5

[1]Danzer, G., & Larson, A. Land and People, A World Geography. Glenview, Ill.: Scott, Foresman and Co. (1979), p. 128.

[2]Capelluti, F., & Grossman, R. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970) p. 47.

4. 5. 6. and 7. The section "Farming Is Improved" is organized around many cause/effect relationships. Reread each] and complete the diagrams to determine the cause/effect relationships.



To allow a field to remain fallow means not planting it for one season. The purpose is to give the soil a chance to regain its fertility. Nevertheless, the field must be plowed to rid it of weeds and to conserve its moisture. The following year another field would be fallowed while the first could be planted again.

The process of plowing required strength greater than man's. In the beginning, primitive plows dug only a few inches into the surface of the earth and overturned the soil. But this was not enough to improve the output of the field. Eventually, the thought of hitching a plow to an animal occurred, and the new farming began. How did the use of farm animals affect man's worktime?

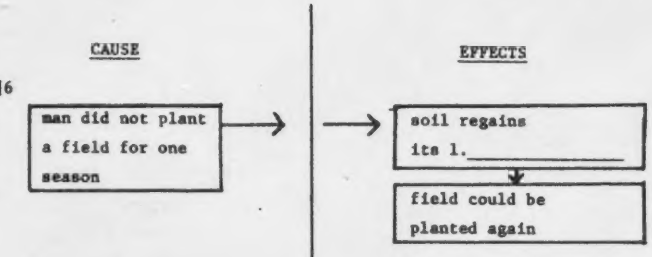
6

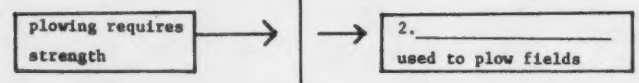
Because the men worked the fields, the women had more time to perform tasks in the village and at home. One of these was weaving. Up to the time of the agricultural revolution, there was very little cloth-making. Skins of animals had been sewn together to make rough clothing. Now a great amount of fiber was available, including hair and wool from domesticated animals, as well as flax.

7

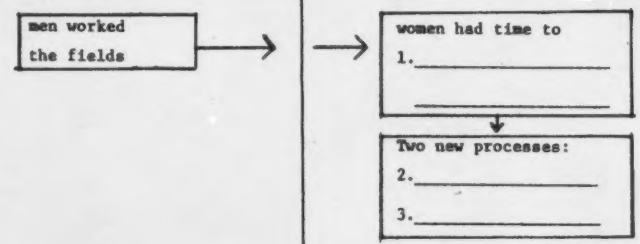
Woven cloth became a very important product of the new way of life. The discovery of dyeing processes added color and variety to the woven cloth. The agricultural revolution allowed Neolithic man to dress as well as to eat better.[1]

]6





]7



PHASES OF MATTER

Experience shows that the many different kinds of matter found in our surroundings can be sorted into three broad categories called physical *states* or *phases*. One category includes *solids*, such as stone or steel. The second comprises *liquids*, such as water or oil. The third includes *gases* such as air or steam. Liquids and gases are known collectively as *fluids*, the phase of matter that can flow. It is possible to produce phase changes in all kinds of matter, and such transitions are often brought about by changes in the conditions of the environment, such as temperature, pressure, and so on.

The three phases of matter can usually be distinguished by observing how a sample behaves with respect to changes in its form or the amount of space it occupies (Fig. 3.1). A solid is characterized by its strong tendency to preserve both its original shape and volume, except when very strong forces are brought to bear on it.

A liquid lacks rigidity of form and will flow even under the influence of its own weight. However, like a solid, it has a definite volume and resists strongly any attempt to change that volume. Some materials, such as glass and certain plastics, appear to be solid at ordinary temperatures but are not true solids according to a more rigorous specification given below.

Gases have neither rigidity of shape nor definite volume. Any sample of a gas, no matter how small, will fill completely any vessel to which it is admitted.[2]

[1] Capeliuti, F., & Grossman, R. The Human Adventure. San Francisco: Field Educational Publications, Inc. (1970), p. 47.

[2] Freeman, I. Physics, Principles and Insights. N.Y.: McGraw-Hill (1973), pp. 41-42.

8

8. and 9. Classification is the scheme used by the author to organize the information in the section "Phases of Matter." Organizing by classification means arranging things into groups or categories. In section 3.2, two classfications of matter are given.

Classification - 1

The first paragraph in]8 identifies three categories for phases of matter. List the three categories:

1. _____ 2. _____ 3. _____

The three phases differ in their form, or shape, and volume, or the amount of space that is occupied. The diagram below lists the three phases and the characteristics (form, volume) of each. Complete the missing information:

Phases of Matter

1. Solids	2. Liquids	3. Gases
form - solids keep their original form	form - liquids flow and thus lack rigidity	form - _____ _____
volume - keep original volume, except under extreme force	volume - _____ _____	volume - gases have no definite form--they will fill any container in which they are placed.

Both liquids and gases are known as _____ because they flow.

Another method of classification, more precise than the above, is based on the atomic model of the internal structure of matter. This is a logical extension of Democritus' original "hunch" that matter is made up of aggregates of microscopic particles (atoms). According to the atomic concept, all materials are either *crystalline* or *amorphous* in structure.

"Amorphous" is from a Greek word meaning "without form."

In a crystalline solid the atoms are closely packed and held close to certain regularly spaced fixed locations by electric forces acting between the atoms. The spacing and arrangement of all these positions form an imaginary framework called the *space lattice* of the crystal. Each kind of crystal has its characteristic lattice whose form and dimensions can be investigated by means of x rays (Ref. 3.3). Two relatively simple examples of lattice structure are represented in Fig. 3.2.

In actual mineral crystals the atoms are not all arranged in the ideal way just described. There are many places where the lattice has *dislocations*, regions where the lattice is locally distorted and where the arrangement of the atoms departs from regularity (see Fig. 3.3a). Crystal *defects* may also be present: Some lattice points are unoccupied, or an occasional foreign atom may be present among the ones that belong there (Fig. 3.3b). Such impurities can produce great changes in the mechanical, electrical, and other properties of some crystals, sometimes leading to important technical applications, such as the transistor (page 427).

Large single crystals can often be grown from a solution or from a melted sample of the material. The external shape of such a crystal reveals features of the invisible lattice structure, but in most cases of crystallization the solid that forms is made up of a rigid mass of small individual crystals, stuck together in random positions. A single crystal of the same material is about a hundred times as strong as this aggregate.[1]

9

Classification - 2

The second classification]9 is based on the internal structure of the atomic structure of matter. The first paragraph in]9 identifies the two groups (Note the marginal definition for one group). List the names of the two groups in the diagram below. One characteristic of each group is given below the blank.

Atomic Structure of Matter

1. _____ definite form

2. _____ shapeless or without form

[1] Freeman, I. Physics, Principles and Insights. New York: McGraw-Hill (1973), pp. 42-43.

The Nature of Taxes

What exactly is meant by "ability to pay"? How much more ability to pay taxes does a person who earns $20,000 a year have than another who earns only $10,000? Is it twice as much, more than twice as much, or perhaps less? Our answer to this question will indicate whether we prefer "proportional," "progressive," or "regressive" taxes.

Proportional Taxes

A *proportional tax* is one in which the percentage rate of taxation is the same for everyone. Assume that the income tax rate is 20 per cent of taxable income.* The person with a $10,000 taxable income would pay $2,000 in taxes, while the person with $20,000 would have to pay $4,000.

To many people, a proportional tax is a fair tax. The person with twice as much income, they argue, should have to pay twice as much tax. Others, however, insist that progressive taxes are best.

Progressive Taxes

A *progressive tax* is one which imposes a higher percentage rate of taxation on persons with high incomes than on those with low incomes. The federal income tax is a progressive tax because as taxable income increases, the percentage rate gets higher. According to ferderal law, a tax rate of only 14 per cent is imposed on the first $600 of taxable income. The top rate is 70 per cent on all taxable income in excess of $100,000.

Regressive Taxes

A *regressive tax* is one which imposes a higher percentage rate of taxation on low incomes than on high incomes. Sales taxes are

*Not all of a person's income is subject to taxation. The law allows certain deductions from *total* income to arrive at *taxable* income. *Taxable income*, thus, is a person's total income which is subject to tax *after* certain deductions have been made.

10. Titles and subheadings in the text can help you understand how the passage is organized.

The title of this passage is "The Nature of Taxes." Three subheadings indicate the types of taxes that are explained.

Finish the organization of the passage as given by titles and subheadings:

3. The nature of taxes
   A. Proportional taxes
   B.
   C.

Comparing and contrasting is a strategy to help you organize the information as you read. Compare and contrast the three types of taxes.

The three taxes are defined by how much tax we pay in relation to amount of income. This is the percentage rate of tax.

As you read 1) determine the rate for each type of tax and its effect on high or low incomes; 2) compare the three types of taxes; 3) try to give practical examples.

Comparing and contrasting the three taxes helped you to organize the passage while you were reading.

Proportional tax
rate is the _____ for high and low incomes.

Progressive tax
rate is _____ for higher than lower incomes.
Example: _____

Regressive tax
rate is _____ for lower than higher incomes.
Example: _____

regarded as regressive. Those who have very low incomes must spend a higher percentage of their incomes for taxable items. Persons with high incomes, however, tend to *save* a larger part of their earnings. Thus, the *percentage* which they spend on taxable goods is less than that of persons with lower incomes.

Let us look at a specific example. Suppose that a person with a $5,000 income spent his entire earnings on food, clothing,

Table 12-1 An Illustration of Regressive Taxation

	Person with Income of $5,000	*Person with Income of $20,000*
Amount spent subject to tax	$5,000	$10,000
Amount of tax @ 4 per cent	200	400
Percentage of total income paid in tax	4%	2%

and shelter for his family. Suppose that another person had an income of $20,000. Half of it he spent for the essentials of life and for luxury items; he saved the remainder, investing part of it in stocks and bonds. The state sales tax rate, let us assume, is 4 per cent.

Table 12-1 shows the sales tax which both individuals paid. Although the person with the higher income paid more *dollars* in taxes, the percentage tax *rate* was less. This is what is meant by a regressive tax.[1]

[1] Brown, J., & Wolš, H. Economics: Principles and Practices. Columbus, Ohio: Charles E. Merrill Publishing, Co. (1968) pp. 36-37.

Notations 1 - 10 -- Definition, cause-effect, classification, and compare-contrast are examples of organizational schemes provided in the text that the reader should recognize. Developmental gloss tells the reader what scheme is being used and then requires the reader to indicate understanding of the scheme by responding to the activities. In a progression of activities, developmental gloss would require readers to identify the schemes. Notice that in Notation 10 the readers' attention is directed to the external organization as well as the scheme of compare and contrast.

D. Monitoring

1. Demonstration

NEED FOR WEATHER FORECASTING

Why are weather alerts necessary?
How do weather forecasts help farmers?
How do weather forecasts help travelers?
How do weather forecasts help you?

Weather alert

Have you ever heard a *weather alert* [uh-LURT] on radio or TV? If you have, you know that such a broadcast is a warning about the weather that is given to help people. A weather alert warns of a storm, very cold temperatures, very warm temperatures, flooding, or drought. The reason for the warning is that if people know what the weather is likely to be, they can better prepare for it.

A weather alert helps people decide whether or not they should go outside and what they should wear. A weather alert also helps people decide what precautions they should take with regard to property and if they should find a safe place to stay. As you can see, whatever the reason for a weather alert, people are helped by it. Have you ever been helped by a weather alert? If so, how?

How forecasts help farmers

Weather forecasts are helpful to farmers. These forecasts help farmers decide when to plant their crops. These forecasts also help farmers decide when to harvest certain crops. Weather forecasts help farmers in other ways, too. What other ways can you think of that weather forecasts may help farmers?

How forecasts help travelers

Weather forecasts are very useful to travelers. For example, suppose you know that there are storms along the route you will be traveling. It might help you decide to spend the night where you were. Or suppose you know that an airport might become snowbound. It might help you decide to postpone a plane trip for a few days.

1

1. To check understanding of pages 233 and 234, the reader should follow these steps:

   1. Go back to the purpose set for reading. The author of this section provides a title that helps the reader establish a purpose: to find out why there is a need for weather forecasting.

   The reader then asks whether or not the purpose was accomplished.

   2. Go back to the purpose questions. Again, the author of this section provides the purpose questions in]1.

   The reader attempts to answer the purpose questions given in]1.

   3. If the reader has problems determining whether the purpose was accomplished or cannot answer the purpose questions, then he should
      a) study the text organization of pages 233 and 234--the four subheadings in this section correspond to the four questions.
      b) reread the information under the subheadings of the question or questions that were problems.

4. The reader should think again about his understanding of pages 233 and 234 after following Steps 1-3.

Weather forecasts also help people who are transporting goods or people. For example, weather forecasts help truck drivers and bus drivers know what the road conditions will be like. Weather forecasts also help railroad engineers, airplane pilots, and ships' captains know what to expect ahead. Why might this be important?

What season of the year do you think is the worst for traveling in your part of the country?

Why?

How forecasts help you

As you may know, people listen to weather forecasts in the evening to find out what the weather will be like the next day. Or they listen to weather forecasts in the morning before they leave home. When do you listen to weather forecasts? Why?

A weather forecast may help you decide if you should wear a raincoat or carry an umbrella. It may help you decide if you should wear boots and gloves. It may also help you decide if you can do something outside or if you should plan to do something inside. What has a weather forecast helped you to decide lately?[1]

[1] Magnoli, M., Douglass, L., & Ellis, D. Exploring Earth and Space. River Forest, Ill.: Laidlow Bros. (1978), pp. 233-234.

Notation 1 - In monitoring comprehension, the focus of demonstration gloss is leading the readers to an awareness of their understanding of the text and the need to evaluate their comprehension. In this example, the reader is led to monitor/check understanding through the steps involved in establishing a purpose. In this text, the purpose and purpose-related questions are given, and the reader is asked to check understanding by referring to the questions after reading. For the reader experiencing difficulty, demonstration gloss gives alternative suggestions to be followed in achieving the purpose for reading.

2. Developmental

THE OCEAN FLOOR

What is the ocean floor next to the continents like?

What part of the ocean floor is flat?

What part of the ocean floor has mountains and valleys?

1

Continental shelf and slope

Have you ever stopped to think that most people probably know more about the surface of the moon than they know about the bottom of the ocean? Scientists have very good maps of the moon's surface. But much of the ocean floor is either not mapped or only poorly mapped. Why, do you think, this is so?

Suppose the Atlantic Ocean could be drained so that you could walk from any place on the east coast of the United States to any place along the coast of Europe. What would your journey be like? First, you would walk across the *continental* [KAHNT-uhn-ENT-al] *shelf*. The continental shelf is an area of the ocean floor next to a continent that gently slopes downward. In fact, it usually slopes about 2.25 meters for every kilometer (12 feet for every mile).

2

As you might guess, the continental shelf is not the same width all the way around the United States. Off the coast of San Francisco, for example, the shelf is only about 48 kilometers (30 miles) wide. Off the coast of Boston, however, the shelf is about 415 kilometers (260 miles) wide. How much wider is the shelf off Boston?

If you continued walking toward Europe, you would eventually come to what is called the *shelf break*. Here, the slope suddenly begins to get steeper. This is where the continental shelf ends. It is still not very deep here compared to the great ocean depths. It may be from 40 meters (130 feet) deep to 500 meters (1,600 feet) deep at the shelf break.

3

1.-8. Monitoring what you read is a strategy for checking your understanding of the passage.

In "The Ocean Floor" use the passage organization (title and subheads) to help check or monitor your understanding.

1. The title and the three subheads indicate the topics to be discussed. Refer to the illustrations on page 416 and 417 to see where the areas of the ocean floor are located.
2. The questions given in]1 helped the reader identify a purpose for reading.
3. In order to check understanding, the reader should try to answer the purpose questions.
4. Fill in the missing information in the following outline to organize the information needed to answer the questions.

I. The Ocean Floor (title)

A. Continental shelf and slope (subhead 1)

1. Continental shelf

]2 a) location: next to a continent

b) description: _____

_____

2. Shelf break

a) location: _____

]3 b) description: slope is quite steep

3. Continental slope

]4 a) location: _____

b) description: very steep downward slope

B. Abyssal plain (subhead 2)

]5 1. location: _____

2. description: very flat, scattered with seamounts or underwater mountains

The *continental slope* begins at the shelf break. This area drops down about 95 meters per kilometer (about 500 feet per mile). It drops down to 4 or 5 kilometers (about 13,000 to 16,000 feet) below sea level. You might think of the continental shelf and the continental slope as parts of a continent that are below sea level. If so, where do you think the continent really starts? 4

Abyssal plain

If you walked all the way down the continental slope, you would come to the *abyssal* [uh-BIHS-uhl] *plain*. The abyssal plain is very flat. It makes up about a third of the ocean floor.

If you continued your journey to Europe, you would probably see a few mountains rising from the abyssal plain. These underwater mountains would be scattered over the abyssal plain. Such mountains are called *seamounts* [SEE-mownts]. They are formed by underwater volcanoes. Some seamounts rise more than a kilometer (over 3,000 feet) above the abyssal plain. Some of them are so tall that they extend above the surface of the water. 5

Sometimes there are seamounts with very flat tops. These seamounts probably looked like most other seamounts at one time. However, the tops of these seamounts were worn away with the passage of time.

> Mauna Loa is a volcano on Hawaii that rises 4,170 meters (about 13,680 feet) above sea level. The part of this volcano below sea level extends downward another 4,877 meters (about 16,000 feet). Since Mount Everest is 8,848 meters (29,028 feet) tall, about how much taller is Mauna Loa than Mount Everest?[1]

[1] Magnoli, M., Douglass, L., & Ellis, D. Exploring Earth and Space. River Forest, Ill.: Laidlow Bros. (1978), pp. 415-418.

The series of undervater mountains form a long *ridge*, or range of mountains. In fact, scientists say that there is a long ridge of mountains near the center of each of the main oceans. The ridge in the Atlantic Ocean, called the Mid-Atlantic Ridge, is probably the best known. 6

If you were able to cross these mountains on your journey toward Europe, you would find that there is a long, deep valley in the very middle of the Mid-Atlantic Ridge. This kind of valley is called a *rift valley*. Scientists have found that the rift valley is an area of earthquake activity. In fact, the rift valley seems to be an area of weakness in the earth's crust. By studying the rocks on each side of the rift valley, scientists have learned many things about the earth. They have found that the rift valley in the middle of the Mid-Atlantic Ridge is growing larger. It is growing about 2.5 centimeters (one inch) per year. That amount may not seem like very much, but over thousands of years it adds up to a great deal. 7

Throughout the Atlantic Ocean, in general, the ocean floor follows the kind of pattern described. However, in some places in the Atlantic Ocean there are deep valleys called *trenches*. Trenches are very deep, V-shaped cuts in the ocean floor. They are very long and narrow and have very steep sides.[1] 8

[1]Magnoli, M., Douglass, L., & Ellis, D. Exploring Earth and Space. River Forest, Ill.: Laidlow Bros. (1978), pp. 418-420.

C. Mountains and valleys (subhead 3)

1. ridge

]6 a) location: center of ocean

b) description: _____

2. rift valley

]7 a) location: _____

b) description: _____

3. trenches

]8 a) location: scattered throughout the sea

b) description: _____

5. Now think about the questions and indicate how you feel about your ability to answer them correctly:

Question 1. sure ? unsure (circle one)

Question 2. sure ? unsure

Question 3. sure ? unsure

Notations 1 - 8 -- In this example, the readers are directed to check their understanding by using the external organization of the text. Responding to the gloss activities should help the reader answer the purpose questions. Rather than writing answers to the questions, the readers are asked to indicate their success in understanding.